# HISTORY OF SOYBEANS

# AND SOYFOODS IN CANADA

# (1831-2010):

# EXTENSIVELY ANNOTATED

# BIBLIOGRAPHY AND SOURCEBOOK

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## BIBLIOGRAPHY AND SOURCEBOOK

**Compiled**

**by**

**William Shurtleff & Akiko Aoyagi**


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History of soybeans in Prince Edward Island
History of soybeans in Quebec
History of soybeans in Québec
History of soybeans in Saskatchewan
History of soybeans in the Yukon Territory
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History of soy in Yukon Territory

# Contents

# DEDICATION AND ACKNOWLEDGMENTS

**This book is dedicated to Dr. Charles Ambrose Zavitz of the Ontario Agricultural College (OAC) - the soybean pioneer in Canada.**

Part of the enjoyment of writing a book lies in meeting people from around the world who share a common interest, and in learning from them what is often the knowledge or skills acquired during a lifetime of devoted research or practice. We wish to give deepest thanks...

Of the many libraries and librarians who have been of great help to our research over the years, several stand out:

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■Finally our deepest thanks to Tony Cooper of San Ramon, California, who has kept our computers up and running since Sept. 1983. Without Tony this series of books on the Web would not have been possible.

This book, now doubt and alas, has its share of errors. These, of course, are solely the responsibility of William Shurtleff.

# INTRODUCTION

## Brief Chronology of Soy in Canada

**1831 Jan. 8 – Soyfood products are first sold in Canada:** William Scammell of Saint John, New Brunswick, advertises in the *Courier* that he has imported and is offering for sale "A few dozen India Soy" [sauce].

**1850 March 2 – Worcestershire Sauce** (which uses soy sauce as a major ingredient), made by Lea & Perrins in England, starts to be imported and sold in Fredericton, New Brunswick, Canada (Troughton 1850).

**1855 – Soybeans may have been cultivated in Canada** at this early date. T.V. Peticolas (of Mt. Carmel, Ohio) writes in two American newspapers: "... on the subject of the Japan Pea, or rather Bean. I have cultivated it for the last three years, and have disseminated it from Canada to Texas" (T.V.P. 1855). Unfortunately he gives us no more details.

**1881 May – Ontario**: Soja beans (soybeans) are first cultivated in this province or in Canada at the Ontario Agricultural College. They were obtained from Mr. Bruce [of the John A. Bruce & Co., seedsmen] of Hamilton. Yield: 15 bushels per acre (Brown 1882, p. 199).

**1893 – Ontario**: Soybeans (Early Yellow variety) are cultivated for a second time in this province. They are introduced by Charles A. Zavitz of the Ontario Agricultural College; he obtained the seeds from Prof. Charles C. Georgeson of the Kansas Agricultural Experiment Station (USA); Georgeson had obtained his soybeans from Japan. With these soybeans, Zavitz begins a lifetime of research on soybeans suited to Ontario, Canada. He deserves the title "Father of soybeans in Canada" (Zavitz 1894; Zavitz 1908; Zavitz 1927).

**1897 May – William Saunders, LL.D., director of the Central Experimental Farm, Ottawa, Ontario, plants his first soybean trials.** His first early soybeans were received from Peter Henderson & Co., seedsmen of New York, in the spring of 1897 (Saunders 1898). He soon begins sending soybeans samples to counterparts in the Dominion Experimental Farms system in other Canadian provinces (see 1898 below) for testing (Saunders 1898).

**1898 April – British Columbia**: Soybeans are first cultivated in this province (Sharpe 1899).

**1898 May – Saskatchewan**: Soybeans are first cultivated in this province (MacKay 1899).

**1898 June – Nova Scotia**: Soybeans are first cultivated in this province (R. Robertson 1899).

**1898 – Manitoba**: Soybeans are first cultivated in this province (Bedford 1899).

**1901 – Zavitz starts to send soybean varieties to Ontario farmers for evaluation** through the Experimental Union (McEwen et al. 1999).

**1909 – Imports of soy sauce from Japan**: About 250,200 liters of Japanese-style soy sauce (shoyu) are imported to Vancouver, BC, where an estimated 8,000 Japanese live (Yada 1910); they consume all or almost all of it. The best selling brand is Kikkoman (Yada 1912).

**1910 March– Quebec**: Soybeans are first cultivated in this province (Dimmock & Kirk 1934).

**1910 – Two Japanese tofu shops** are now making and selling tofu in Vancouver, BC, Canada. Unfortunately the names and addresses of the shops are unknown *(Nichi-Bei Nenkan [Japanese-American Yearbook]*, 1910, p. 224).

**1913 – Imports of soya cake.** Canada begins importing small amounts of soya cake and soya beans from Asia, continuing until 1917 (International Institute of Agriculture, 1918).

**1922 – Alberta**: Soybeans are first cultivated in this province (MacConkey 1936).

**1922 Nov. 16 – Soybeans are now cultivated commercially in Ontario, Canada. "**Jeffrey Bros., and the Broadfield Stock Farm, near Whitby, Ontario, Canada cultivated nearly 100 acres of soybeans this year. People are growing soybeans in a commercial way in Canada" (Campbell 1922. p. 641).

**1923 – OAC 211**, a soybean variety developed by Charles Zavitz, becomes the first soybean registered in Canada. By 1939 six soybean varieties had been registered in Canada (Tanner 1993).

**1925 Oct. – Vi-tone**, "A delicious Malted Milk Chocolate-flavored drink [soymilk]. Rich in proteins and vitamines of the soya bean," it is now made commercially in Hamilton, Ontario (Ad in *Toronto Daily Star*. 1925 Oct. 25. p. 10; Dimmock 1929).

**1926 – Ontario**: About 1,000 acres of soybeans are now grown Ontario, used principally as a substitute hay crop (Meharry 1926; statement by Prof. John Buchanan of Guelph).

**1927 – Charles Zavitz** and co-workers have now evaluated over 100 soybean varieties.

**1928 – Soybeans in Canada**: The main areas of production are the central and southwestern portions of the province of Ontario. Small areas have been grown in every province in the Dominion. Canada has imported annually, during the last 7 years, an average of about 5,000,000 pounds of soybean oil for use in the manufacture of soaps and paints (McRostie et al. 1928).

**1929 – Amano Miso Seizo-sho**, owned and run by the Amano Brothers, starts making miso at 2121 Powell St., Vancouver, BC. (*The New Canadian* 1941. Aug. 22, p. 8)

**1930 March – Milton Oil Refineries Ltd.**, Canada's first soybean crusher, begins operation at Milton, Ontario, Canada (*Toronto Daily Star*. 1930. March 1, p. 28).

**1933 May – New Brunswick**: Soybeans are first cultivated in this province (Dimmock & Kirk 1934).

**1933 June – Prince Edward Island**: Soybeans are first cultivated in this province (Dimmock & Kirk 1934).

**1936 June 10 – Miyazaki Tofu-ten**, Canada's first tofu shop with a name and address, starts operations at 216 Gore Ave., Vancouver, BC (*Hokubei Nenkan* 1936. p. 254).

**1936 – The first official soybean production statistics are recorded for Canada and for Ontario** – 248,000 bushels (*Soybean Blue Book*, 1956, p. 30).

**1939 June – Newfoundland**: Soybeans are first cultivated in this province (Lloyd 1940).

**1938 –Toronto Elevator**s starts crushing soybeans in Toronto, Ontario (Vinall 1982, p. 24-27).

**1938 – Canada uses some 2.4 million lb of soybean oil**, including 1.6 million lb in soaps and washing compounds (*Soybean Blue Book*).

**1939-42 – As World War II begins**, Canada experiences critical shortages of oil and protein. Soybeans grown in Canada offer a new source of both. In 1942 Ontario produces 871,290 bushels on 41,490 acres.

**1942 – Manitoba, Canada**: The province's first soybean production statistics are recorded - 53,710 bushels produced on 2,510 acres. Production continues until 1945. Soybean production statistics are also first recorded that year for British Columbia – 4,500 bushels on 900 acres (*Soybean Blue Book*).

**1944 Nov. – Victory Soya Mills**, a wholly-owned subsidiary of Canadian Breweries Ltd., begins operations on Toronto's waterfront (*Toronto Daily Star*. 1944. Nov. 20, p. 10). The company aggressively promoted the crop in the late 1940s and 1950s. However soybeans were slow to expand out of the traditional five-county area in southwestern Ontario (Tanner 1993).

**1945 – Canada crushed 981,000 bushels of soybeans**, increasing to 4.5 million bushels in 1949 (*Soybean Blue Book*).

**1946 Nov. 8 – The Ontario Soybean Growers Association** is organized at a meeting at Leamington, Ontario (Peck 1947, p. 8).

**1946 – Canadian soybean production tops 1 million bushels**, up from only 217,000 bushels in 1941-42 (*Soybean Blue Book*).

**1949 – The Ontario Soybean Growers' Marketing Board is reorganized** from the 1946 Association. The "The Ontario Soya-Bean Growers' Marketing Scheme" is likewise established in 1949 under the "Farm Products Marketing Act" of Ontario. The Board's membership grew from 1,722 in 1949 to 17,272 in 1991.

**1951 – The soybean variety Harosoy in released**, developed by Cass Owen at the Harrow Research Station starting in 1936. Harosoy dominated Canadian soybean acreage for more than 35 years (Tanner 1993).

**1954 – Ontario soybean growers begin to seek export markets** when the Ontario Soybean Growers' Marketing Board organizes the first export of Canadian soybeans to the United Kingdom.

**1970-71 – Canadian soybean production tops 10 million**

**bushels** (*Soybean Digest Bluebook*).

**1972 – Canada's identity preserved (IP) program begins**, pioneered by C. Itoh in Toronto exporting the Harwood variety, favored for making tofu and miso, to Japan (Epp 1984).

**1976 April 1 – Maple Arrow soybean variety** is registered. A ground-breaking variety with earlier maturity and improved tolerance to cooler climates, it is the first of the "Maple" series of varieties that enable soybeans to be cultivated northward and eastward, in areas with shorter growing seasons, expanding their range from southern Ontario (Beversdorf et al. 1995; Dorff 2007).

**1976–1997 – Soybean acreage and production in Canada expand at a faster rate** than at any prolonged period after World War II. This is caused by better prices, a new cash-crop mentality, improved varieties, better herbicides, better inoculants, and narrow-row seeding (Beversdorff et al.1995).

**1984 – Soybean varieties developed by private breeders.** In 1984, 24 of the 35 varieties recommended by the Ontario Ministry of Agriculture and Food (OMAF) were developed in the private sector (Beversdorf 1984).

**1985 June – Yukon Territory**: Soybeans are first cultivated in this province (Loeks 1985).

**1991 March – Victory Soya Mills**, Ontario's largest soybean crusher, ceases operations and padlocks the doors of its plant on the Toronto waterfront (Yakabushi 1991, p. C1).

**1999 Dec. 1 – Ontario Soybean Growers** is the new name of Ontario Soybean Growers' Marketing Board which celebrates its 50th anniversary this year.

**2010 Jan. 1 – Grain Farmers of Ontario (GFO)** is created by the merger of Ontario Soybean Growers, Ontario Corn Producers' Association, and Ontario Wheat Producers' Marketing Board.

**Current Status**:

The soybean is Canada's most important grain legume crop.

Most of Canada's soybeans are produced in southern Ontario, with secondary production areas in eastern Ontario, southern Quebec, southern Manitoba, and Prince Edward Island.

In 2008/09 Canada was the world's 7th largest soybean producing country, producing 3.060 million tonnes (metric tons) of soybeans – about 1.3% of the world's total.

Canada has the world's most advanced, integrated, pervasive, and trusted identity preserved (IP) program.

Canadian soybeans for export are carefully cleaned and inspected; they contain less foreign matter than their U.S. counterparts.

Canada is a world leader in export of premium-quality food-grade soybeans to Pacific Rim countries such as Japan, Malaysia and Singapore, where they are used to make tofu, soymilk, miso, natto, soy sauce, and other traditional soyfoods.

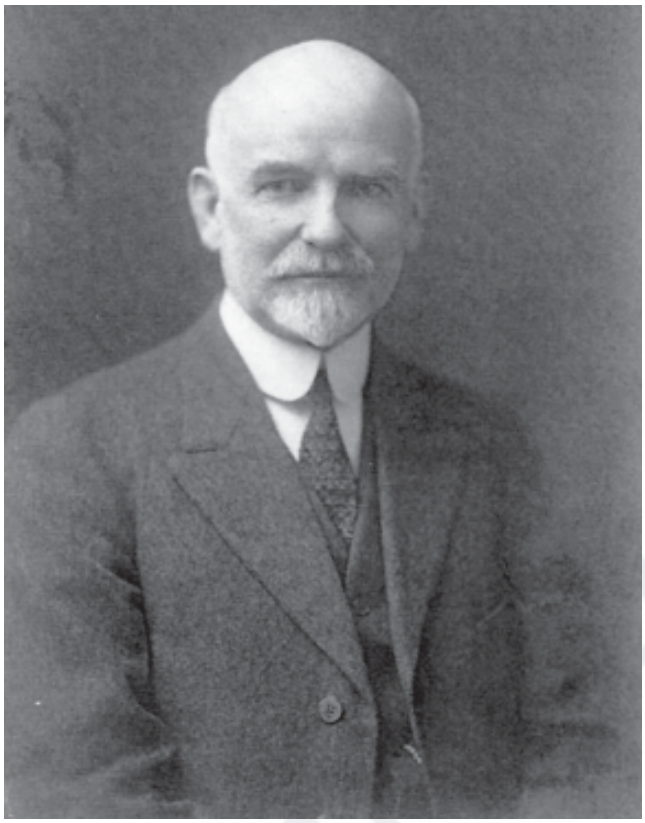
Canada has a long-term program of breeding soybeans to fit the exact specifications and needs of different soyfoods industries (such as tofu or miso). This includes incoming missions of Asian soyfoods makers and outgoing missions of Canadian professionals, with continuing feedback aiming at ever higher soybean quality and customer satisfaction.

About 65% of the soybeans produced in Canada are genetically engineered (Petrie 2009). Almost all of these are for non-food uses.

For excellent histories of the soybean in Canada, especially during the period after World War II, see:

- Tanner, J.W. 1973. "Where we are and how we got there: An historical review of soybean production in Ontario."
- Voldeng, Harvey. 1979. "Soybeans in Canada – Past, present and future."
- Tanner, Jack. 1993. "The first one hundred years."
- Beversdorf, W.D.; et al. 1995. "Soybean." A history of soybean breeding in Canada.
- McEwen, Freeman;… Tanner, Jack; et al. 1999. "125 years of achievements: OAC…" See also Soyascan interviews with J.W. Tanner in Feb. 2000 and March 2002.
- An earlier edition of this book, *Soya in Canada - Bibliography and Sourcebook*, was published in 1993 on the 100th anniversary of the soybean in Canada.

**Note**: We have no record of soybeans ever having been cultivated in the Northwest Territories or in Nunavut – in northern Canada.



**Charles A. Zavitz - 1920**

## ABOUT THIS BOOK

This is the most comprehensive book ever published about History of Soy in Canada. It has been compiled, one record at a time over a period of 35 years, in an attempt to document the history of soy this region. It is also the single most current and useful source of information on this subject.

This is one of more than 50 books compiled by William Shurtleff and Akiko Aoyagi, and published by the Soyinfo Center. It is based on historical principles, listing all known documents and commercial products in chronological order. It features detailed information on:

- 73 different document types, both published and unpublished.
- 2,384 published documents - extensively annotated bibliography. Every known publication on the subject in every language.
- 383 original Soyinfo Center interviews and overviews never before published.
- 274 unpublished archival documents
- 347 commercial soy products.

Thus, it is a powerful tool for understanding the development of this subject from its earliest beginnings to the present.

Each bibliographic record in this book contains (in addition to the typical author, date, title, volume and pages information) the author's address, number of references cited, original title of all non-English language publications together with an English translation of the title, month and issue of publication, and the first author's first name (if given). For most books, we state if it is illustrated, whether or not it has an index, and the height in centimeters.

For commercial soy products (CSP), each record includes (if possible) the product name, date of introduction, manufacturer's name, address and phone number, and (in many cases) ingredients, weight, packaging and price, storage requirements, nutritional composition, and a description of the label. Sources of additional information on each product (such as advertisements, articles, patents, etc.) are also given.

A complete subject/geographical index is also included.

# ABBREVIATIONS USED IN THIS BOOK

A&M = Agricultural and Mechanical
Agric. = Agricultural or Agriculture
Agric. Exp. Station = Agricultural Experiment Station
ARS = Agricultural Research Service
ASA = American Soybean Association
Assoc. = Association, Associate
Asst. = Assistant
Aug. = August
Ave. = Avenue
Blvd. = Boulevard
bu = bushel(s)
ca. = about (circa)
cc = cubic centimeter(s)
Chap. = Chapter
cm = centimeter(s)
Co. = company
Corp. = Corporation
Dec. = December
Dep. or Dept. = Department
Depts. = Departments
Div. = Division
Dr. = Drive
E. = East
ed. = edition or editor
e.g. = for example
Exp. = Experiment
Feb. = February
fl oz = fluid ounce(s)
ft = foot or feet
gm = gram(s)
ha = hectare(s)
i.e. = in other words
Inc. = Incorporated
incl. = including
Illust. = Illustrated or Illustration(s)
Inst. = Institute
J. = Journal
J. of the American Oil Chemists' Soc. = Journal of the American Oil Chemists' Society
Jan. = January
kg = kilogram(s)
km = kilometer(s)
Lab. = Laboratory
Labs. = Laboratories
lb = pound(s)
Ltd. = Limited
mcg = microgram(s)
mg = milligram(s)
ml = milliliter(s)
mm = millimeter(s)
N. = North
No. = number or North
Nov. = November
Oct. = October
oz = ounce(s)
p. = page(s)
P.O. Box = Post Office Box
Prof. = Professor
psi = pounds per square inch
R&D = Research and Development
Rd. = Road
Rev. = Revised
RPM = revolutions per minute
S. = South
SANA = Soyfoods Association of North America
Sept. = September
St. = Street
tonnes = metric tons
trans. = translator(s)
Univ. = University
USB = United Soybean Board
USDA = United States Department of Agriculture
Vol. = volume
V.P. = Vice President
vs. = versus
W. = West
°C = degrees Celsius (Centigrade)
°F = degrees Fahrenheit
> = greater than, more than
< = less than

# HOW TO MAKE THE BEST USE OF THIS BOOK

Here are a few tips to help you get the most out of the information contained in this book.

**Chronological Order**: The publications and products in this book are listed with the earliest first and the most recent last. Within each year, references are sorted alphabetically by author. If you are interested in only current information, you might want to start reading at the back, just before the indexes.

**A Reference Book: Search It with Adobe Acrobat**: Like an encyclopedia or any other reference book, this work is meant to be searched - to find exactly the information you are looking for - more than to be read.

At the small "Find" box (top center) click the down arrow. Click "Open full Acrobat search." In the box "What word or phrase would you like to search for?" type in your word or phrase. Then click search. The results will appear below. Try clicking the first one - to see how it works.

**How to Use the Index**: A subject and country index is located at the back of this book. It will help you to go directly to the specific information that interests you. Browse through it briefly to familiarize yourself with its contents and format.

Each record in the book has been assigned a sequential number, starting with 1 for the first/earliest reference. It is this number, not the page number, to which the indexes refer. A publication will typically be listed in each index in more than one place, and major documents may have 30-40 subject index entries. Thus a publication about the nutritional value of tofu and soymilk in India would be indexed under at least four headings in the subject and country index: Nutrition, Tofu, Soymilk, and Asia, South: India.

Note the extensive use of cross references to help you: e.g. "Bean curd. See Tofu."

**Countries** and States/Provinces: Every record contains a country keyword. Most USA and Canadian records also contain a state or province keyword, indexed at "U.S. States" or "Canadian Provinces and Territories" respectively. All countries are listed under their region or continent. Thus for Egypt, look under Africa: Egypt, and not under Egypt. For Brazil, see the entry at Latin America, South America: Brazil. For India, see Asia, South: India. For Australia see Oceania: Australia.

Most Important Documents: Look in the Index under "Important Documents -."

**Organizations**: Many of the larger, more innovative, or pioneering soy-related companies appear in the subject index – companies like ADM / Archer Daniels Midland Co., AGP, Cargill, Dupont, Kikkoman, Monsanto, Tofutti, etc. Worldwide, we index many major soybean crushers, tofu makers, soymilk and soymilk equipment manufacturers, soyfoods companies with various products, Seventh-day Adventist food companies, soy protein makers (including pioneers), soy sauce manufacturers, soy ice cream, tempeh, soynut, soy flour companies, etc.

Other key organizations include Society for Acclimatization (from 1855 in France), American Soybean Association, National Oilseed/Soybean Processors Association, Research & Development Centers (Peoria, Cornell), Meals for Millions Foundation, and International Soybean Programs (INTSOY, AVRDC, IITA, International Inst. of Agriculture, and United Nations). Pioneer soy protein companies include Borden, Drackett, Glidden, Griffith Labs., Gunther, Laucks, Protein Technologies International, and Rich Products.

**Soyfoods**: Look under the most common name: Tofu, Miso, Soymilk, Soy Ice Cream, Soy Cheese, Soy Yogurt, Soy Flour, Green Vegetable Soybeans, or Whole Dry Soybeans. But note: Soy Proteins: Isolates, Soy Proteins: Textured Products, etc.

Industrial (Non-Food) Uses of Soybeans. Look under "Industrial Uses ..." for more 17 subject headings.

**Pioneers -** Individuals: Laszlo Berczeller, Henry Ford, Friedrich Haberlandt, A.A. Horvath, Englebert Kaempfer, Mildred Lager, William Morse, etc. Soy-Related Movements: Soyfoods Movement, Vegetarianism, Health and Dietary Reform Movements (esp. 1830-1930s), Health Foods Movement (1920s-1960s), Animal Welfare/ Rights. These are indexed under the person's last name or movement name.

**Nutrition**: All subjects related to soybean nutrition (protein quality, minerals, antinutritional factors, etc.) are indexed under Nutrition, in one or more of 14 subcategories.

**Soybean Production**: All subjects related to growing, marketing, and trading soybeans are listed under Soybean Production. E.g. Soybean Production: Nitrogen Fixation, or

Soybean Production: Plant Protection, or Soybean Production: Variety Development.

**Other Special Index Headings**: Browsing through the subject index will show you many more interesting subject headings, such as Industry and Market Statistics, Information (incl. computers, databases, libraries), Standards, Bibliographies (works containing more than 50 references), and History (soy related).

**Commercial Soy Products**: All Soyinfo Center sourcebooks that focus on a specific soyfood (tofu, soymilk, tempeh, miso, etc.) or geographical area (Africa, Japan) contain extensive information about every known commercial soyfood product - a unique feature. We list the product name, manufacturer's name, address, and phone number, year and month of introduction, ingredients, weight-packaging-price, how stored, nutritional analysis, and documentation on sources of additional information on that product.

**SoyaScan Notes**: This is a term we have created exclusively for use with this database. A SoyaScan Notes Interview contains all the important material in short interviews conducted and transcribed by William Shurtleff. This material has not been published in any other source. Longer interviews are designated as such, and listed as unpublished manuscripts. A transcript of each can be ordered from Soyinfo Center Library. A SoyaScan Notes Summary is a summary by William Shurtleff of existing information on one subject.

"Note:" When this term is used in a record's summary, it indicates that the information which follows it has been added by the producer of this database.

**Asterisks at End of Individual References.**
1. An asterisk (*) at the end of a record means that Soyinfo Center does not own that document. Lack of an asterisk means that Soyinfo Center owns all or part of the document.
2. An asterisk after eng (eng*) means that Soyinfo Center has done a partial or complete translation into English of that document.
3. An asterisk in a listing of the number of references [23* ref] means that most of these references are **not** about soybeans or soyfoods.

**Documents Owned by Soyinfo Center.** Lack of an * at the end of a reference indicates that the Soyinfo Center Library owns all or part of that document. We own roughly three fourths of the documents listed. Photocopies of hard-to-find documents or those without copyright protection can be ordered for a fee. Please contact us for details.

**Document Types**: The SoyaScan database contains 51 different types of documents, both published (books, journal articles, patents, annual reports, theses, catalogs, news releases, videos, etc.) and unpublished (interviews, unpublished manuscripts, letters, summaries, etc.).

**Customized Database Searches**: This book was printed from SoyaScan, a large computerized database produced by the Soyinfo Center. Customized/personalized reports are "The Perfect Book," containing exactly the information you need on any subject you can define, and they are now just a phone call away. For example: Current statistics on tofu and soymilk production and sales in England, France, and Germany. Or soybean varietal development and genetic research in Third World countries before 1970. Or details on all tofu cheesecakes and dressings ever made. You name it, we've got it. For fast results, call us now!

**BIBLIO**: The software program used to produce this book and the SoyaScan database, and to computerize the Soyinfo Center Library is named BIBLIO. Based on Advanced Revelation, it was developed by Soyinfo Center, Tony Cooper and John Ladd.

History of Soybeans and Soyfoods: This book has a corresponding chapter in our forthcoming scholarly work titled History of Soybeans and Soyfoods (4 volumes). Manuscript chapters from that book are now available on our website, www.soyinfocenter.com.

**About the Soyinfo Center.** An overview of our publications, computerized databases, services, and history is given on our website.

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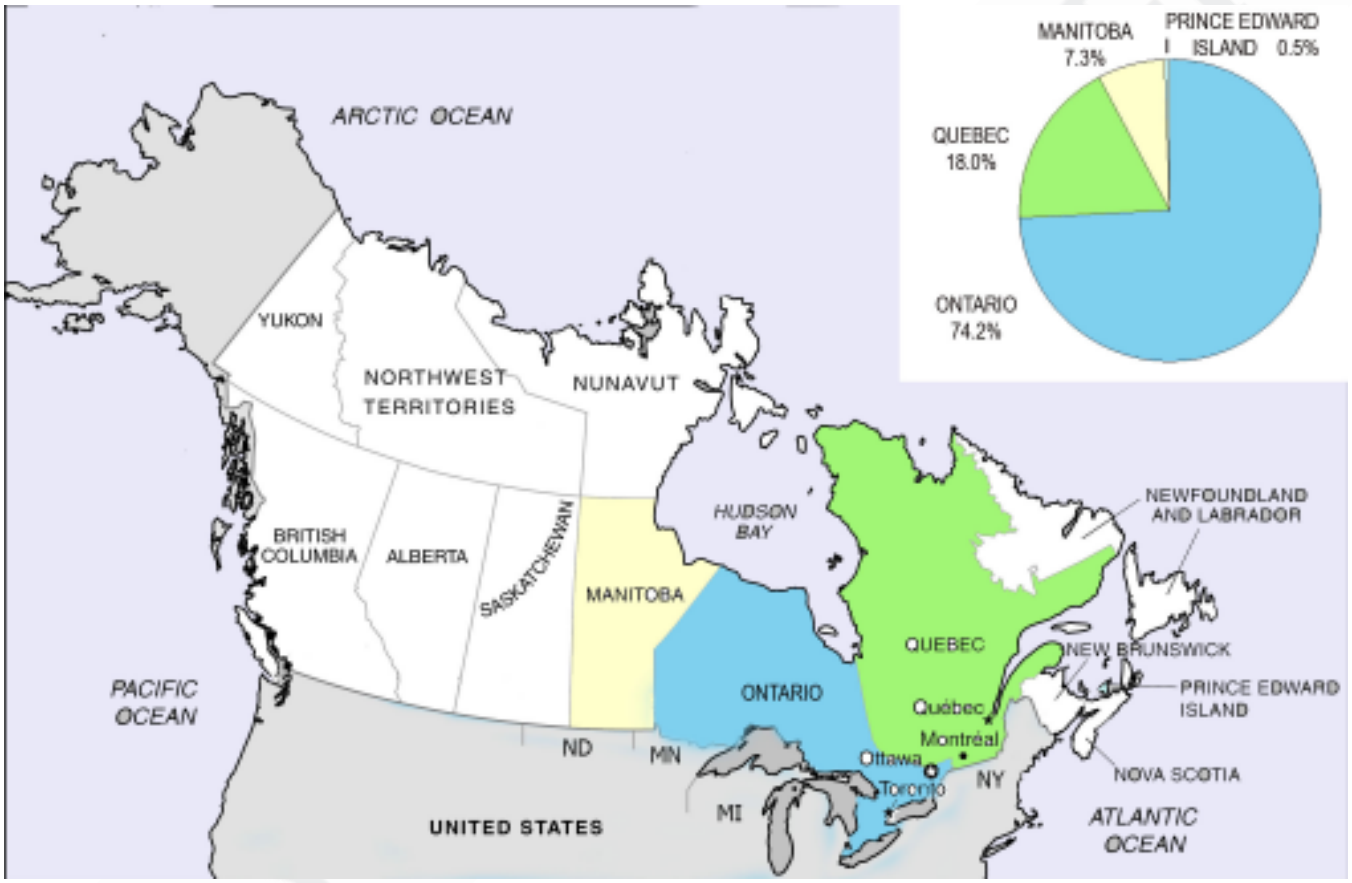
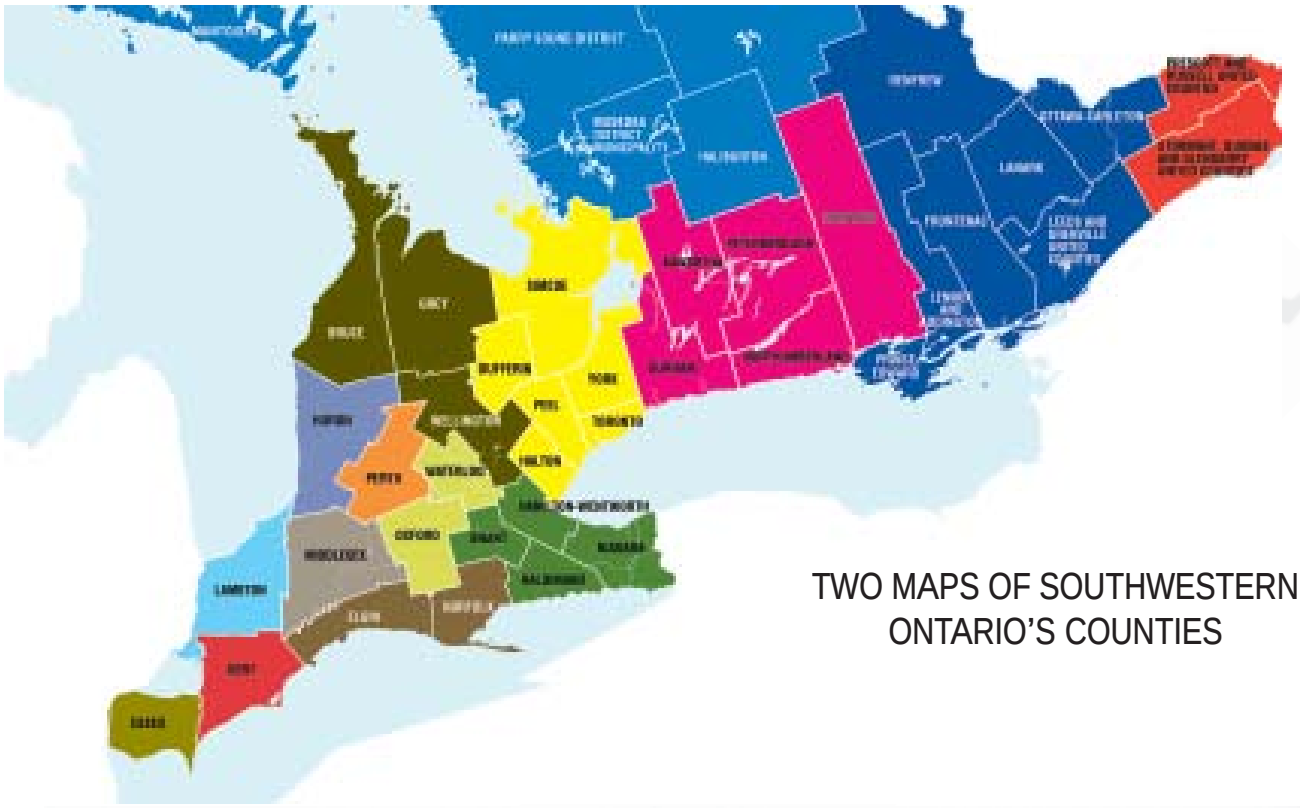
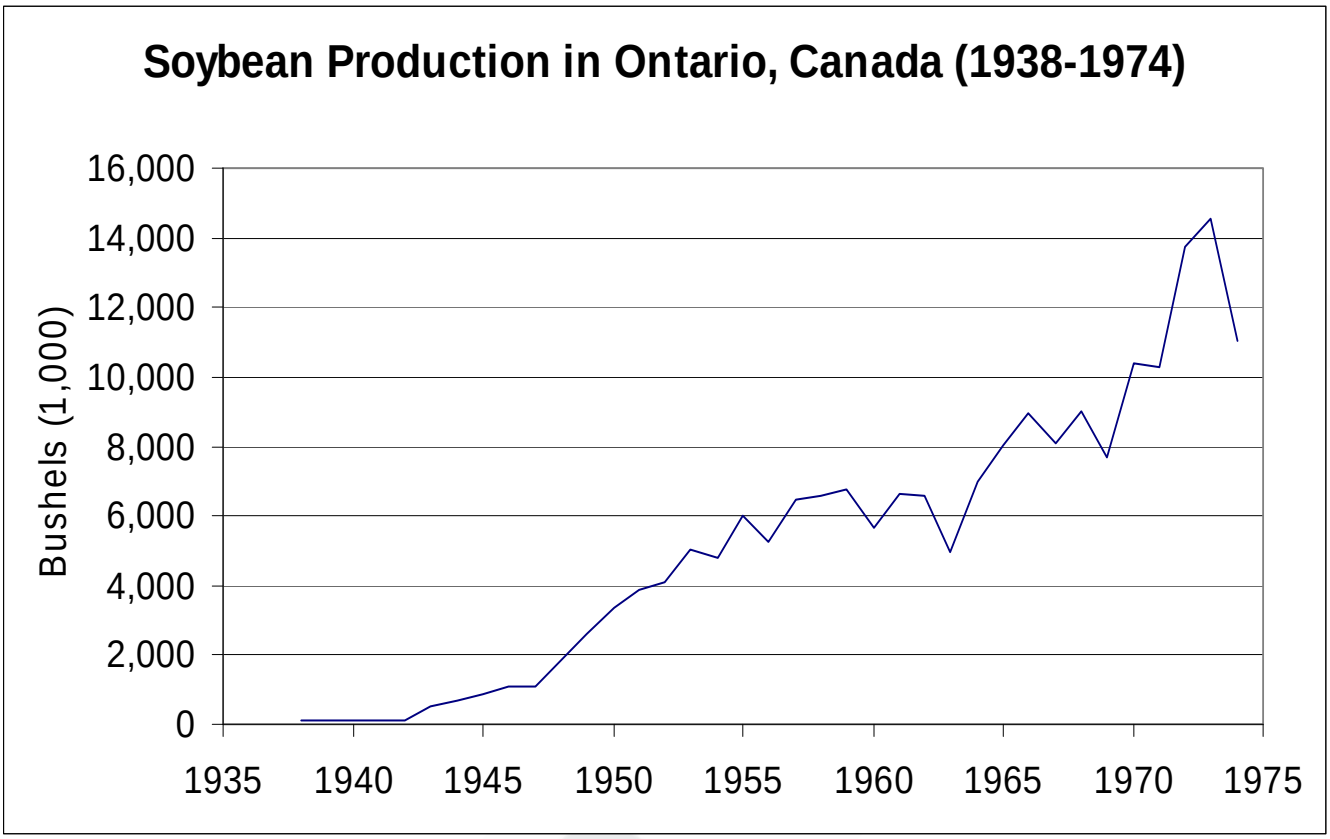
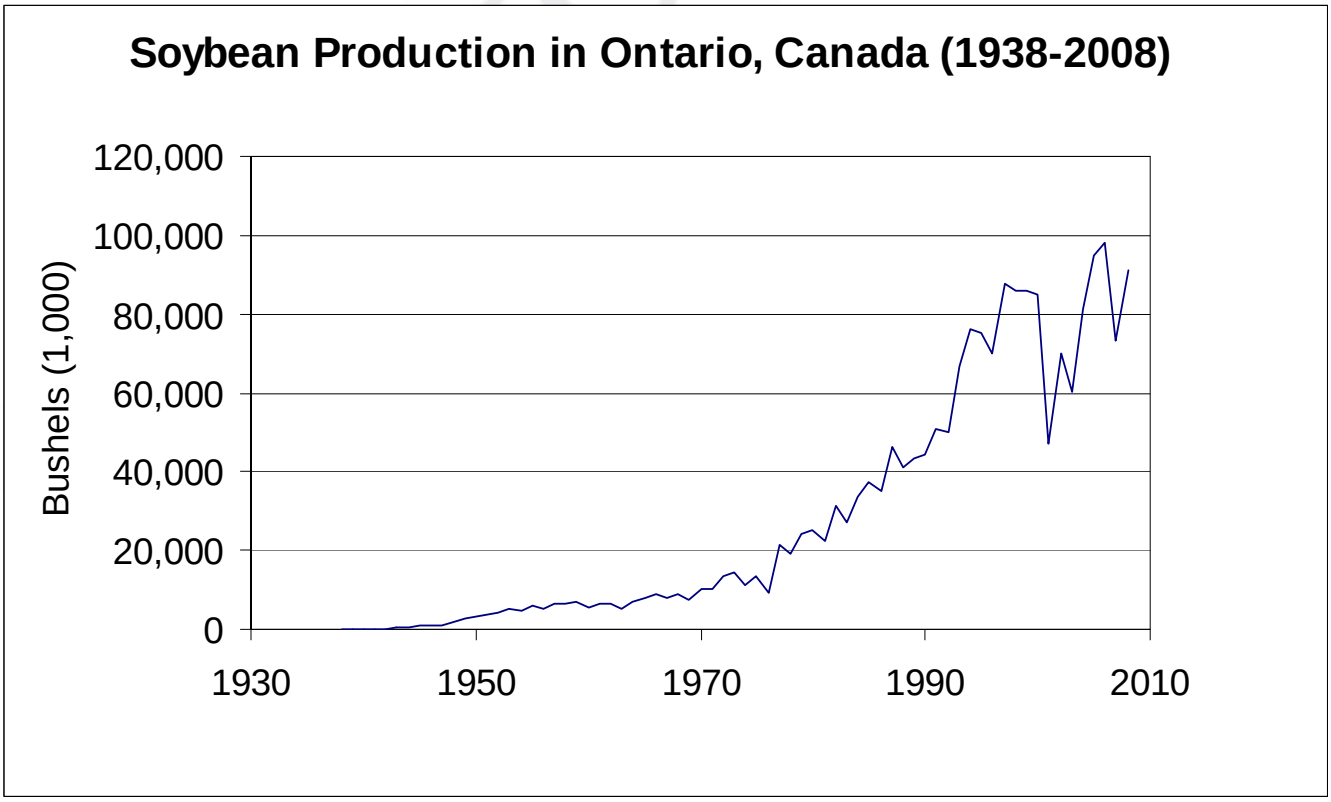
CANADA - SHOWING THREE MAJOR SOYBEAN PRODUCING PROVINCES AND THE PROPORTION PRODUCED BY EACH IN 2008





TWO MAPS OF SOUTHWESTERN ONTARIO'S COUNTIES



## Ontario Soybean Acreage, Yield, Production, Price, and Total Value (1943-2008)

| Crop Year | Acres Harvested | Yield (bu/acre) | Production ('000 bu) | Average Price (CDN $/bu) | Total Value (CDN $'000) |
|---|---|---|---|---|---|
| **2008** | 2,095,000 | 43 | 91,000 | 11.31 | 956,517 |
| **2007** | 2,225,000 | 33 | 73,500 | 10.12 | 750,390 |
| **2006** | 2,130,000 | 46 | 98,000 | 7.22 | 679,221 |
| **2005** | 2,315,000 | 41 | 95,000 | 6.30 | 597,964 |
| **2004** | 2,300,000 | 40 | 81,170 | 7.72 | 626,632 |
| **2003** | 2,000,000 | 32 | 60,400 | 9.87 | 596,148 |
| **2002** | 2,065,000 | 34 | 70,000 | 8.50 | 595,000 |
| **2001** | 2,225,000 | 21 | 47,000 | 7.31 | 343,500 |
| **2000** | 2,235,000 | 38 | 85,000 | 7.07 | 601,100 |
| **1999** | 2,125,000 | 41 | 86,000 | 7.17 | 616,600 |
| **1998** | 2,100,000 | 41 | 86,000 | 7.58 | 651,900 |
| **1997** | 2,315,000 | 38 | 88,000 | 9.16 | 806,100 |
| **1996** | 1,890,000 | 37 | 70,000 | 10.07 | 704,900 |
| **1995** | 1,815,000 | 41 | 75,000 | 8.80 | 660,000 |
| **1994** | 1,875,000 | 41 | 76,000 | 7.43 | 564,700 |
| **1993** | 1,740,000 | 39 | 67,000 | 8.15 | 546,100 |
| **1992** | 1,450,000 | 35 | 50,000 | 6.84 | 342,000 |
| **1991** | 1,409,063 | 36 | 51,000 | 6.18 | 315,200 |
| **1990** | 1,150,000 | 39 | 44,500 | 6.26 | 278,600 |
| **1989** | 1,290,000 | 33 | 43,200 | 6.61 | 285,600 |
| **1988** | 1,280,000 | 32 | 41,300 | 8.46 | 349,400 |
| **1987** | 1,120,000 | 41 | 46,000 | 7.19 | 330,700 |
| **1986** | 939,738 | 37 | 34,900 | 6.30 | 219,900 |
| **1985** | 1,000,000 | 37 | 37,200 | 6.71 | 249,600 |
| **1984** | 1,000,000 | 34 | 33,700 | 7.55 | 254,400 |
| **1983** | 900,000 | 30 | 27,000 | 9.33 | 251,900 |
| **1982** | 900,000 | 35 | 31,200 | 6.80 | 212,200 |
| **1981** | 689,061 | 32 | 22,297 | 7.19 | 160,300 |
| **1980** | 685,000 | 37 | 25,345 | 8.53 | 216,913 |
| **1979** | 690,000 | 35 | 24,150 | 7.12 | 171,948 |
| **1978** | 705,000 | 27 | 18,944 | 7.64 | 144,675 |
| **1977** | 550,000 | 39 | 21,310 | 6.54 | 139,367 |
| **1976** | 377,850 | 24 | 9,200 | 7.05 | 64,860 |
| **1975** | 390,000 | 35 | 13,478 | 4.92 | 66,312 |
| **1974** | 415,000 | 27 | 11,050 | 6.34 | 70,057 |
| **1973** | 470,000 | 31 | 14,570 | 5.45 | 79,407 |
| **1972** | 405,000 | 34 | 13,770 | 3.90 | 53,703 |

| Crop Year | Acres Harvested | Yield (bu/acre) | Production ('000 bu) | Average Price (CDN $/bu) | Total Value (CDN $'000) |
|---|---|---|---|---|---|
| **1971** | 367,185 | 28 | 10,281 | 2.96 | 30,432 |
| **1970** | 335,000 | 31 | 10,385 | 2.78 | 28,870 |
| **1969** | 322,000 | 24 | 7,664 | 2.43 | 18,624 |
| **1968** | 295,000 | 30 | 9,027 | 2.44 | 22,026 |
| **1967** | 290,000 | 28 | 8,091 | 2.67 | 21,603 |
| **1966** | 279,000 | 32 | 8,939 | 3.00 | 26,817 |
| **1965** | 265,000 | 30 | 8,030 | 2.65 | 21,279 |
| **1964** | 231,000 | 30 | 6,976 | 2.87 | 20,021 |
| **1963** | 228,000 | 22 | 4,993 | 2.80 | 13,980 |
| **1962** | 221,000 | 30 | 6,608 | 2.48 | 16,388 |
| **1961** | 212,000 | 31 | 6,631 | 2.25 | 14,920 |
| **1960** | 256,000 | 22 | 5,669 | 2.03 | 11,508 |
| **1959** | 248,000 | 27 | 6,783 | 1.87 | 12,684 |
| **1958** | 256,000 | 26 | 6,579 | 1.88 | 12,368 |
| **1957** | 252,000 | 26 | 6,476 | 1.95 | 12,628 |
| **1956** | 240,000 | 22 | 5,269 | 2.15 | 11,328 |
| **1955** | 227,000 | 26 | 5,993 | 2.09 | 12,525 |
| **1954** | 245,000 | 19 | 4,778 | 2.40 | 11,467 |
| **1953** | 231,000 | 22 | 5,013 | 2.45 | 12,282 |
| **1952** | 172,000 | 24 | 4,128 | 2.55 | 10,526 |
| **1951** | 155,000 | 25 | 3,844 | 2.75 | 10,571 |
| **1950** | 142,000 | 23 | 3,323 | 2.55 | 8,474 |
| **1949** | 104,000 | 25 | 2,610 | 2.26 | 5,899 |
| **1948** | 94,000 | 19 | 1,824 | 2.30 | 4,195 |
| **1947** | 61,000 | 18 | 1,110 | 3.06 | 3,397 |
| **1946** | 59,200 | 18 | 1,072 | 2.21 | 2,369 |
| **1945** | 46,000 | 18 | 842 | 1.90 | 1,600 |
| **1944** | 35,800 | 19 | 677 | 2.00 | 1,354 |
| **1943** | 32,200 | 17 | 545 | 1.80 | 981 |

**Source: OMAF, Ontario Soybean Growers' Marketing Board**

## Ontario Soybean Area and Production by County (2008)

| | Acres seeded | Acres harvested | Yield (bushels/acre) | Production ('000 bu) | Production ('000 tonnes) |
|---|---|---|---|---|---|
| Brant | 32,000 | 31,900 | 47 | 1,499 | 40.8 |
| Chatham-Kent | 172,000 | 171,700 | 43 | 7,383 | 200.9 |
| Elgin | 82,000 | 81,900 | 44 | 3,604 | 98.1 |
| Essex | 179,000 | 178,700 | 35 | 6,255 | 170.2 |
| Haldimand-Norfolk | 145,000 | 144,800 | 43 | 6,226 | 169.5 |
| Hamilton | 38,000 | 37,900 | 45 | 1,706 | 46.4 |
| Lambton | 243,000 | 242,500 | 44 | 10,719 | 291.7 |
| Middlesex | 152,000 | 151,700 | 49 | 7,433 | 202.3 |
| Niagara | 51,000 | 50,900 | 47 | 2,392 | 65.1 |
| Oxford | 67,000 | 66,900 | 49 | 3,278 | 89.2 |
| **Southern Ontario** | **1,161,000** | **1,158,900** | **43.6** | **50,495** | **1,374.20** |
| Bruce | 72,000 | 71,900 | 42 | 3,027 | 82.4 |
| Dufferin | 10,500 | 10,500 | 41 | 431 | 11.7 |
| Grey | 16,000 | 16,000 | 40 | 640 | 17.4 |
| Halton | 21,000 | 21,000 | 42 | 882 | 24 |
| Huron | 132,000 | 131,800 | 48 | 6,353 | 172.9 |
| Peel | 22,000 | 22,000 | 45 | 990 | 26.9 |
| Perth | 91,000 | 90,900 | 49 | 4,445 | 121 |
| Simcoe | 74,000 | 73,900 | 44 | 3,252 | 88.5 |
| Waterloo | 15,500 | 15,500 | 48 | 744 | 20.2 |
| Wellington | 81,000 | 80,900 | 44 | 3,560 | 96.9 |
| **Western Ontario** | **535,000** | **534,400** | **45.5** | **24,322** | **661.9** |
| Durham | 41,000 | 40,800 | 40 | 1,632 | 44.4 |
| Haliburton | - | - | - | - | - |
| Hastings | 7,500 | 7,500 | 41 | 307 | 8.3 |
| Kawartha Lakes | 31,000 | 30,900 | 38 | 1,174 | 32 |
| Muskoka | - | - | - | - | - |
| Northumberland | 24,000 | 23,900 | 41 | 980 | 26.7 |
| Parry Sound | - | - | - | - | - |
| Peterborough | 8,000 | 8,000 | 35 | 280 | 7.6 |
| Prince Edward | 13,000 | 12,900 | 46 | 593 | 16.1 |
| York | 30,000 | 29,900 | 39 | 1,166 | 31.7 |
| **Central Ontario** | **154,500** | **153,900** | **39.8** | **6,132** | **166.9** |
| Frontenac | 3,500 | 3,500 | 45 | 158 | 4.3 |
| Lanark | 9,000 | 8,900 | 43 | 383 | 10.4 |
| Leeds and Grenville | 16,000 | 15,900 | 43 | 684 | 18.6 |
| Lennox and Addington | 5,000 | 5,000 | 44 | 220 | 6 |
| Ottawa | 52,000 | 51,600 | 43 | 2,219 | 60.4 |
| Prescott and Russell | 74,000 | 73,500 | 36 | 2,646 | 72 |
| Renfrew | 8,000 | 7,900 | 42 | 332 | 9 |
| Stormont, Dundas and Glengarry | 80,000 | 79,500 | 42 | 3,339 | 90.9 |
| **Eastern Ontario** | **247,500** | **245,800** | **40.6** | **9,980** | **271.6** |
| **Northern Ontario** | **2,000** | **2,000** | **35.7** | **71** | **1.9** |

# HISTORY OF SOYBEANS AND SOYFOODS IN CANADA

1. Scammell (William). 1831. On sale–By the subscriber (Ad). *Courier (Saint John, New Brunswick, Canada).* Jan. 8. p. 4.
• ***Summary:*** "Small Jars East-India Ginger.
"A few dozen India Soy [sauce].
"Madeira and Port, by the doz. [dozen] or otherwise."
Note: This is the earliest document seen (Feb. 2010) concerning soybean products (soy sauce) in New Brunswick, or in Canada. This document contains the earliest date seen for soybean products in New Brunswick or in Canada (Jan. 1831); soybeans as such have not yet been reported.

2. Smith (William O.). 1831. Ann–From London. The subscriber has received by the above vessel–a fresh supply of genuine drugs, medicines, patent medicines; perfumery, pickles,... among which are... (Ad). *Courier (Saint John, New Brunswick, Canada).* July 23. p. 1.
• ***Summary:*** "Essence of Gorgona Anchovies, Mushroom and walnut Ketchup, Harvey's Sauce, Browning Sauce, Indian Soy [sauce], Tomato Ketchup, Sallad Oil,..."
Note: William O. Smith ran several subsequent ads for India Soy, Walnut and Mushroom Ketchup, etc. in 1832 in this newspaper. Address: No. 1, North side of the Market-square.

3. Watson (William R.). 1843. Drugs, medicines, and select groceries (Ad). *Palladium (The) (Charlottetown, Prince Edward Island, Canada).* Dec. 28. p. 4.
• ***Summary:*** "Has just received per Acadian from Greenock, and Jane Sprat from Halifax, his winter supply... Mustard, assorted Pickles, do. [ditto = assorted] Sauces, Real Indian Soy, Olives, Capers, &c..."
Note: This is the earliest document seen (Feb. 2010) concerning soybean products (soy sauce) in Prince Edward Island, Canada. This document contains the earliest date seen for soybean products in Prince Edward Island (Dec. 1843); soybeans as such have not yet been reported. Address: No. 14, Cheapside.

4. Bell (Lucius) & Co. 1844. Wholesale and retail grocers (Ad). *Globe (The) (Toronto, Canada).* July 9. p. 4.
• ***Summary:*** This company in Rochester, New York (on the central southern shore of Lake Ontario), is advertising in a newspaper in Toronto, Ontario, Canada (on the northeastern shore of Lake Ontario). The two cities are about 90 miles apart as the crow flies.
"We propose to keep in Rochester, an assortment of Teas, Coffees, Fruits, Spices, Sugars, &c., embracing every variety and quality that can be found in the finest establishments in the City of New York.
A long list of goods, divided into categories, is given.
"Sauces, &c. Canton Soy [Sauce], Mushroom, Walnut and Tomato Catsup, Harvey, Reading. Anchovy, John Bull, Quinn and General Sauce." Address: No. 26, Buffalo St., Second Store East of Arcade Hall, Rochester, New York.

5. Watson (W.R.). 1845. Select groceries (Ad). *Islander (The) (Charlottetown, Prince Edward Island, Canada).* Feb. 1. p. 2.
• ***Summary:*** Includes: "... Tarrogan and Chilly Vinegar [Tarragon, Chili], Tomato Sauce, Indian Soy [sauce], Mushroom Catsup,..."

6. Troughton (G.). 1850. Grocery, wine & spirit store (Ad). *Head Quarters (Fredericton, New Brunswick, Canada).* March 2. p. 4.
• ***Summary:*** "Sauces and pastes: Harvey Sauce,... Lea & Perrin's Worcestershire Sauce,... Tomato Ketchup, Mushroom ditto [Ketchup], Essence of Anchovies,... India Soy [sauce], Gorgona Anchovies,..." Address: Queen Street, Opposite the Stone Barracks, Fredericton.

7. Troughton's Grocery, Wine, & Spirit Store. 1850. Constantly on hand, at lowest rates (Ad). *Head Quarters (Fredericton, New Brunswick, Canada).* Oct. 16. p. 4.
• ***Summary:*** "Sauces and pastes: Harvey's Sauce,... Lea & Perrin's Worcestershire Sauce,... Tomato Ketchup, Mushroom Ketchup, Essence of Anchovies, India Soy [sauce], Gorgona Anchovies,..." Address: Queen Street, Fredericton.

8. T.V.P. [T.V. Peticolas]. 1855. Japan pea. *Country Gentleman* 5(15):232. April 12. Whole No. 119. Also published in The Cultivator 3(5):159. May. Series 3.
• ***Summary:*** "... on the subject of the Japan Pea, or rather Bean. I have cultivated it for the last three years, and have disseminated it from Canada to Texas. It produces abundantly in common corn ground, planted six inches apart in the row, and the rows from 18 inches to two feet apart–wide enough to hoe or use a small cultivator. When eaten a few times they are pleasant enough, but have very little flavor–better when mixed with other beans. Before cooking, they must be soaked at least twenty-four hours. They are inconvenient to use green, being so difficult to hull. Chickens are very fond of them, and hogs devour them with great gusto. I think they would do for a field crop sown broadcast in good soil."

Note 1. This is the earliest document seen (Jan. 2010) concerning soybeans in Canada or in Texas. This document contains the earliest date seen for soybeans in Canada or Texas (April 1855). These soybeans may well have been grown in Canada and/or in Texas, but we cannot be certain of that.

Note 2. This is the 2nd earliest English-language document seen (June 2009) that mentions green vegetable soybeans; it notes "They are inconvenient to use green, being so difficult to hull."

Note 3. This is the earliest document seen (Oct. 2003) that uses the word "cultivator" in connection with soybean production.

Note 4. This is the earliest document seen (July 2002) concerning the feeding of soybeans or soy products to chickens in the United States.

Note 5. Letter from Ted Hymowitz. 1994. May 18. He says this man's full name is T.V. Peticolas. He probably received his soybean seeds from A.H. Ernst. His evaluation of soybeans as a potential new crop was amazingly astute (Hymowitz 1987, p. 31). Address: Mount Carmel, [Clermont Co.], Ohio.

9. T.V.P. 1855. Japan pea. *Cultivator (The)* 3(5):159. May. Third Series.

• ***Summary:*** Reprinted from *The Country Gentleman.* 1855. April 12. p. 32. "... on the subject of the Japan Pea, or rather Bean. I have cultivated it for the last three years, and have disseminated it from Canada to Texas. It produces abundantly in common corn ground, planted six inches apart in the row, and the rows from 18 inches to two feet apart–wide enough to hoe or use a small cultivator. When eaten a few times they are pleasant enough, but have very little flavor–better when mixed with other beans. Before cooking, they must be soaked at least twenty-four hours. They are inconvenient to use green, being so difficult to hull. Chickens are very fond of them, and hogs devour them with great gusto. I think they would do for a field crop sown broadcast in good soil." Address: Mount Carmel, Ohio.

10. Lea & Perrins. 1855. Lea & Perrins' celebrated Worcestershire Sauce (Ad). *Islander (The) (Charlottetown, Prince Edward Island, Canada).* Oct. 19. p. 4.

• ***Summary:*** "Pronounced by connoisseurs to be the 'only good sauce' and applicable to every variety of dish.

"Extract of a letter from a medical gentleman at Madras [India], to his brother at Worcester. May, 1851. 'Tell Lea & Perrins that their Sauce is highly esteemed in India, and is, in my opinion, the most palatable as well as the most wholesome Sauce that is made.'

"Sold universally by the principal dealers in Sauces.–Wholesale for Exportation by the Proprietors Lea and Perrins, 68, Broad-street, Worcester, and 19, Fenchurch-street, London. Barclay and Sons; Crosse and Blackwell, and other Oilmen and Merchants, London.

An illustration shows a bottle of Lea & Perrins' Worcestershire Sauce.

11. Harrington (W.M.) & Co. 1858. Spring supplies–1858 (Ad). *British Colonist (Halifax, Nova Scotia, Canada).* June 15. p. 1.

• ***Summary:*** "The Subscribers have completed their stock, ex White Star, London, George Bradford, Liverpool, and Roseneath, Glasgow, consisting of–English Pickles and Sauces, Anchovy Paste,... Bengal Chutney, India Soy [sauce], Sallad Oil,..."

12. Lea & Perrins. 1862. Lea & Perrins celebrated Worcestershire Sauce (Ad) *Quebec Mercury (Canada).* Jan. 2. p. 1.

• ***Summary:*** "Pronounced by connoisseurs to be the 'only good sauce' and applicable to every variety of dish.

"Extract of a letter from a medical gentleman at Madras [India] to his brother at Worcester. May, 1851. 'Tell Lea & Perrins that their Sauce is highly esteemed in India, and is, in my opinion, the most palatable as well as the most wholesome Sauce that is made.'

"Extensive frauds. L. & P. having discovered that several of the Foreign Markets have been supplied with Spurious Imitations of the 'Worcestershire Sauce,' the labels of which closely resemble those of the Genuine Sauce, and in one or more instances the names of L. & P. forged, they have deemed it their duty to caution the public, and to request purchasers to see that the name of Lea & Perrins are upon the *Wrapper, Label, Stopper, and Bottle.*

"L. & P. further give notice, that they will proceed against any one who may infringe upon their right, either by manufacturing or vending such imitations, and have instructed their correspondents in the various parts of the world, to advise them of such infringements.

"Wholesale and for exportation by the Proprietors Lea & Perrins, Worcester, England; Crosse and Blackwell, and other Oilmen and Merchants, London.

"Quebec, Nov. 9, 1861.

A small illustration shows a bottle of Lea & Perrins' Worcestershire Sauce.

Note 1. This is the earliest document seen (Feb. 2010) concerning soybean products (Worcestershire sauce, whose main ingredient was soy sauce) in Québec. This document contains the earliest date seen for soybean products in Québec (May 1862); soybeans as such have not yet been reported.

Note 2. This is the earliest document seen (Feb. 2010) in which Lea & Perrins uses the term "will proceed against" to threaten a lawsuit.

Note 3. This ad appears about 20 times in this newspaper from 1862 to 1864.

13. Lea & Perrins. 1862. Sauce.–Lea and Perrins Worcestershire Sauce (Ad) *Quebec Mercury (Canada).* Nov. 25. p. 2.

• ***Summary:*** "Pronounced by connoisseurs to be the 'only good sauce' and applicable to every variety of dish.

"Extract of a letter from a medical gentleman at Madras [India] to his brother at Worcester. May, 1851. 'Tell Lea & Perrins that their Sauce is highly esteemed in India, and is, in my opinion, the most palatable as well as the most wholesome Sauce that is made.'

"Caution. Lea & Perrins beg to caution the public against spurious imitations of their celebrated Worcestershire Sauce.

L. & P. have discovered that several of the Foreign Markets have been supplied with Spurious Imitations, the labels closely resembling those of the genuine Sauce, and in one or more instances the names of L. & P. *forged.*

"L. & P. will proceed against any one who may manufacture or vend such imitations, and have instructed their correspondents in the various parts of the world to advise them of any infringement of their rights.

"Ask for Lea and Perrins' Sauce. Sold Wholesale and for Export by the Proprietors, Worcester; Messrs. Crosse and Blackwell; Messrs. Barclay and Sons, London; &c. and by Grocers and Oilmen universally.

"Quebec, Nov. 18, 1862.

A small illustration shows a bottle of Lea & Perrins' Worcestershire Sauce.

Note: This is the earliest document seen (Feb. 2010) by Lea & Perrins that uses the term "will proceed against" to threaten a lawsuit.

14. Photograph of the family of Daniel and Susan Zavitz, of Lobo Township, Ontario. 1867.

• ***Summary:*** This black-and-white photo (6½ by 10 inches) shows the family of which Daniel Zavitz is husband. Left to right: Charles (born 25 Aug. 1863, so about age 5), Daniel, Caroline, Samuel, Susan (wife), and Edgar Zavitz. All are dressed formally. They appear to be at home (in Coldstream, Ontario, Canada) seated in front of a metal stove around a small table. Daniel's left hand is on an open book (probably a Bible) on the table. On the right margin of the photo is printed: "J. Cooper, London" [Ontario]. Address: Ontario, Canada.

15. Photograph of the family of Daniel and Susan Zavitz, of Lobo Township, Ontario. 1869.

• ***Summary:*** This black-and-white photo (6½ by 10 inches) shows the family of which Daniel Zavitz is husband. Left to right: Samuel P., Edgar M., Susan Vail Zavitz (wife), Caroline (Cutler), Daniel, and Charles A. (the youngest,

born 25 Aug. 1863, so about age 7). All are dressed formally. They appear to be at home (in Coldstream, Ontario, Canada). Samuel, Susan, and Daniel are seated; the other three are standing. Address: Ontario, Canada.

16. *Sarnia Observer (Ontario, Canada).*1879. Farm and garden: Household recipes. May 30. p. 7.
• ***Summary:*** "Worcestershire sauce.–One quart of *thin* tomato catsup made and spiced the usual way, with the addition of cayenne pepper and a sufficient quantity of crushed garlic, added to the catsup while boiling and before it is strained, to give it a decided garlic taste. Then add enough soy sauce–to be obtained at almost any good grocery store–to make the catsup a deep chocolate color; two tablespoonfuls will probably be sufficient."

Note 1. By 1879 "soy sauce" was apparently available "at almost any good grocery store" in the area of Sarnia, in southwestern Ontario. Sarnia is located where the upper Great Lakes empty into the St. Clair River.

Note 2. This is the earliest document seen (Feb. 2010) concerning soybean products (soy sauce) in Ontario, Canada. This document contains the earliest date seen for soybean products in Ontario (May 1879); soybeans as such have not yet been reported.

17. *Daily Advertiser (London, Ontario, Canada).*1880. Medical notes and queries: The value of cereals as food. Feb. 18. p. 3.
• ***Summary:*** "In a lecture on the chemistry of food, Prof. Church gives some points in regard to diet which are suggestive and practical... Speaking of peas, beans, and various kinds of pulse, it was pointed out how much more nearly the different kinds agree in composition than the cereals do. The great drawback to the various kinds of pulse is that they are difficult to digest. They are an excellent theoretical food, according to analysis, but they are a severe tax on digestion. Of all the beans, non presents a better typical food than the Soy bean."

Lentils are also good, "but they are bitter, astringent, and not easy of digestion. It has come to be pretty well recognized that the food of man doing hard word should have flesh-formers [protein] to heat-givers [calories / starch] in proportion of 1 to 4½, and that the need of a child should have 1 to 7. Bread gives 1 to 7½... Pulse gives (taking an average) 1 to 2¼, which is far too small."

18. *Toronto Daily Mail (Canada).*1881. The days of salad. A chapter for epicures. April 6. p. 3.
• ***Summary:*** From the London Globe: "The Duke... was a great friend of Dumas the Father–Father of the best novels, travels, cookery books that were ever published." Giorgio

Ronconi, the celebrated Duke of Ferrara, sometimes used to retired to Dumas' private chambers in Paris, "where the following salad was always ready for him. Dumas himself describes it as a salad of high fantasy,... And here shall follow the great novelist's recipe for making the salad, or rather the mixture...

"'I place,' says Dumas, 'in my salad bowl for two guests the yolk of an egg, and stir it in oil till it becomes a paste. To this paste I add chervil, minced tunney, pounded anchovies, mustard of Maille, a large spoonful of soy [sauce], gherkins, and the whites of eggs, also minced. Then dilute the whole with the best vinegar I can procure, and my servant stirs it; while over all I cast a pinch of "paprico," an Hungarian pepper. And there,' says the most conceited but delicious novelist that ever lived, 'you,' meaning the world in general, 'possess the salad that so astonished poor Ronconi.'"

Note: Alexandre Dumas (père = father; 1802-1870), of France, is best known for his famous historical novels of high adventure, including *The Count of Monte Cristo* and *The Three Musketeers.*

19. Brown, W. 1882. Report of the Professor of Agriculture and Farm Superintendent. *Ontario Agricultural College and Experimental Farm, Annual Report (Guelph)* 7:126-207. For the year ending 31 Dec. 1881. See p. 199.
• ***Summary:*** In section IV, "The experimental" (p. 162), part B, "The plant" (p. 184), subsection 10, titled "Sundry small experiments," states (p. 199).

"2. The Soja beans obtained from Mr. Bruce [of John A. Bruce & Co.], of Hamilton, have done well, half crops producing fifteen bushels per acre. A low-branched bush one foot high, some individual plants had 125 pods, with two and three in each pod."

Note: This is the earliest document seen (Jan. 2010) that refers to soybeans in Canada, or in Ontario province, Canada, or to the cultivation of soybeans in Canada, or in Ontario province, Canada. This document contains the earliest date seen for soybeans in Canada, or in Ontario province, Canada, or the cultivation of soybeans Canada, or in Ontario province, Canada (spring 1881). The source of these soybeans was a Mr. Bruce of Hamilton, Ontario. We do not know when or where Mr. Bruce got his soybeans. However, we have some leads!

John A. Bruce & Co. was established in 1850– according to an ad in *Canada: A Memorial Volume* (published in 1889 in Montreal, by E.B. Biggar; see p. XV at end of book). This ad further describes the company as "Seed growers and importers, Hamilton, Ontario... Descriptive and Priced Catalogues on Application."

*The Horticulturist* (April 1865, p. 123) states: "Bruce's Great Upper Canada Seed and Nursery Establishment. Descriptive Catalog of Seeds for the Farm, the Kitchen Garden, and the Flower Garden... with brief hints on sowing, planting, cultivation, &c. John A. Bruce & Co., Hamilton, C.W."

In a 1903 report we read: "Messrs. John A. Bruce & Co., of Hamilton, Ontario," have handled leguminous crops (See Fletcher, James. 1903, "Report of the Entomologist and Botanist," p. 177, 185).

In 1906 John A. Bruce & Co. sent varieties of field pea and bitter vetch (leguminous seeds) to USDA's Bureau of Plant Industry.

Various published document show that Bruce & Co. was in business until at least 1939. Address: Prof. of Agriculture and Farm Superintendent, OAC, Guelph, Ontario, Canada.

20. *Sessional Papers–Legislature of the Province of Ontario.*1882. 10. Sundry small experiments. Vol. XIV, Part II, p. 639. Third Session of the Fourth Legislature of the Province of Ontario, Session 1882.
• ***Summary:*** Page 639: "The Soja beans obtained from Mr. Bruce, of Hamilton, have done well, half crops producing fifteen bushels per acre. A low-branched bush one foot high,..."

Note: This information is from W. Brown 1882.

21. C.A. Zavitz collection (Finding aid for archival collection). 1883. Guelph, Ontario, Canada: University of Guelph, McLaughlin Archives. 3 boxes and 1 unboxed volume (probably oversize).
• ***Summary:*** This archival collection in the Univ. of Guelph library has the call number RE1 OAC A0813. It includes Zavitz's work in both agriculture and with the Society of Friends (Quakers). Handwritten notes by C.A. Zavitz concern oat variety tests. Also includes very valuable notebooks written by Zavitz: 1884 (2), 1885 (5), 1886 (2), 1887 (1), and five undated.

Note 1. C.A. Zavitz's roll top desk is located in the O.A. C. Boardroom (Johnston 104).

Note 2. The bulk of this collection was donated on 29 Nov. 1992 by James R. Zavitz, the grandson of Charles A. Zavitz. Additional materials were donated separately by Owen Roberts. One rare book owned by Prof. Zavitz is catalogued separately in the rare books collection: *The Rural Economy of Glocestershire,* 2 vols. (1789). Address: Guelph, Ontario, Canada.

22. Zavitz, Charles A. 1885-1887. Daily journal. 3 vols. Guelph, Ontario, Canada. *
• ***Summary:*** Zavitz kept this diary while a student at Ontario Agricultural College. It is a rich source of information about his thoughts, interests, and activities. Unfortunately he stopped in early 1887, so the details of his personal life thereafter are not so readily available. Location: Archives, Univ. of Guelph Library, Ontario, Canada.

23. Photograph of the family of Daniel and Susan Zavitz, of Lobo Township, Ontario. 1890. Undated.

• ***Summary:*** This black-and-white photo (8 by 10 inches) shows the family of which Daniel Zavitz is husband. Left to right: Edgar Merritt Zavitz (residence: Coldstream). Alzina Brown Zavitz (standing, wife of Edgar from Pickering, Ontario). Susan Vail ZavitEz (seated, wife of Daniel, and mother of four children in photo). Charles A. Zavitz (center, residence: Guelph). Rebecca Wilson Zavitz (seated at front, center, wife of Charles, from Bloomfield, Prince Edward County, Ontario, daughter of Isaac Wilson). Ida Haight Zavitz (standing, wife of Samuel, from Yarmouth Twp., Elgin Co., Sparta Preparatory Meeting, daughter of Ephraim Haight and Elizabeth Chase). Samuel Pound Zavitz (standing, residence: Coldstream). Caroline Zavitz Cutler (seated on arm of father's chair; her husband, David Cutler, is deceased). Daniel Zavitz (seated in armchair, husband of Susan, father of four children in photo, born in Bertie Twp., Niagara, Black Creek Preparatory Meeting).

Note 1. James Zavitz thinks that this photograph may have been taken in June 1890 on the occasion of the marriage of Charles A. Zavitz and Rebecca Wilson, who are both seated at the center of the photo. James knows of no other wedding photo. Rebecca has on a lovely black dress. Quaker women did not spend a lot of money to make or rent a special flouncy white wedding dresses which they would never wear again, nor did and Quaker men do likewise with a tuxedo; that would not be practical. Rather, they both wore their very best plain clothes–the clothes they wore to Quaker meetings or to town. Sometimes Quakers might have a new dress or suit of clothes made for the wedding,

but afterwards they would wear it to meetings or town. This expressed their basic beliefs in practicality, plain clothes, and plain talk.

In her notes accompanying the photograph, Jane Zavitz Bond writes: This photograph is in the Canadian Yearly Meeting (CYM) archives at Pickering College, Newmarket, Ontario. The order of birth was Caroline, Samuel, Edgar, and Charles. This family prized the values as established by the Discipline of the Society of Friends (Genesse Yearly Meeting). They believed in the development of each individual's capacity to give and serve the local and larger community. Support of formal and continued education was the key to this. It was expected that each would contribute, out of training, to needs where they were! Caroline and Edgar attended Swarthmore College, near Philadelphia, Pennsylvania. Charles attended Ontario Agricultural College at Guelph. Samuel went to business school in New York and London. Local schools in Lobo township were supported by Friends as good citizens.

Edgar (editor) and Samuel (businessman) were responsible for the *Young Friends Review,* published 1886-1899 from Coldstream (a Quaker community), printed in London, Ontario. Address: Ontario, Canada.

24. Zavitz, C.A. 1891. Report of the assistant superintendent of experiments. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 16:152-202. For the year 1890. See p. 202.
• ***Summary:*** In 1890 C.A. Zavitz, the newly appointed director of experiments, drew the attention of President Mills to two pressing needs which he believed were "of the utmost importance to the real practical bearing and greater development of the experimental work at this institution for the best interests of the farmers of Ontario.

"(1) That an experiment station building should be erected upon the college grounds where work could be accomplished during the winter months in preparing grains and fertilisers for the coming season's experimental work and for distributing over the province..."

"(2) That there be a number of branch experiment stations established throughout Ontario" because of the province's variation in both soil and climate. Address: B.S.A., Asst. Superintendent of Experiments, Ontario Agricultural College [Guelph, Ontario, Canada].

25. *Toronto Daily Mail (Canada).*1892. Theory and practice: The Ontario Agricultural and Experimental Union. Fourteenth annual meeting–Ex-students of the college on the farm. Dec. 27. p. 4.
• ***Summary:*** "Guelph, Dec. 26–The fourteenth annual meeting of the Ontario Agricultural and Experimental Union opened on the 22nd inst. in No. 1 class room at the Ontario Agricultural College. Mr. Nelson Monteith, B.S.A., president of the union, occupied the chair."

"Second day: After the reports of committees were received, the following officers were elected for the ensuing year:... Editor, Mr. C.A. Zavitz... Delegate to Central Farmers' Institute, Mr. C.A. Zavitz."

"The report on agricultural experiments was presented by Mr. C.A. Zavitz, B.S.A. He reported on co-operative work in agriculture for the last seven years. The successful experiments this year, so far heard from, were nearly 1,600, viz.,..." These experiments were conducted on 164 farms in Ontario. "Mr. Zavitz was enthusiastic in his report, and thoroughly convinced his hearers of the importance, wide extent, and thoroughness of his work."

26. *Sarnia Observer (Ontario, Canada).*1893. Feeding horses: Give them more nitrogenous food and less corn–Work horses. July 14. p. 4.
• ***Summary:*** "One sees the finest draft horses in the streets of English cities. Those equine monsters, the brewers' horses, black as coal, sleek and spirited, are strong enough to walk off with ease with a load of six or seven tons. The solid food of these giants of their race mainly consists of crushed oats or barley and beans, with sheaves of green barley and tares [perhaps the common vetch, *Vicia sativa,* a legume], in addition to the accustomed hay." Sometimes a dozen eggs are added to the regular food. "This is an excellent thing for the skin, and the coat glistens like satin under this kind of feeding.

"These horses have the advantage of the richest kind of diet in their beans. These contain as much nitrogen as lean beef, and for the restoration of wasted muscle caused by hard work the nitrogenous elements of food are specially useful. We have no such food for our horses on this side of the world [in Canada]. Our climate seems to be unfavorable for the growth of the crop, but we have a substitute almost precisely constituted in the dried brewers' grains which have recently come into the market. Peas have nearly the same composition as beans and might be used as a substitute for them, but the southern [U.S.] cow pea is a bean, and the soja bean, closely related, is equally rich in this needed nitrogenous matter. This bean is the choice food for horses in India and is well worth cultivation here as a partial substitute for our to starchy corn."

27. Mills, James. 1894. Report of president. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 19:3-18. For the year 1893. See p. 6-8.
• ***Summary:*** In the section titled "Changes in staff," president Mills notes (p. 6): "Prof. Shaw left for Minnesota at the same time [1 Oct. 1893]; and his place was filled by making C.A. Zavitz, B.S.A., head of the Experimental Department, appointing G.E. Day, B.S.A., Lecturer on Agriculture, Live Stock, etc., and placing Wm. Rennie of Swansea in charge of the farm. As Farm Superintendent, Mr. Rennie devotes his whole time to the management of

the farm and live stock, and the control and oversight of men and students at work. By this arrangement, the office of Farm Foreman has been dispensed with..."

In the section titled "Experimental Department," president Mills states (p. 7-8): "Our experimental work has been carried on with vigor throughout the year, especially in testing varieties of grain, dates of seeding, and methods of cultivation. On the plots at the College, Mr. C.A. Zavitz, our experimentalist, tested 70 varieties if winter wheat, 73 of spring wheat, 73 of barley, 133 of oats, 81 of peas,..." Mr. Zavitz also supervised some live stock experiments: Two experiments with 6 steers, one experiments with 4 cows, and 3 experiments with 160 lambs.

"For detailed information on the nature and results of all these experiments, see report of the Experimentalist in Part VIII. of this volume." Address: President, Ontario Agricultural College [Guelph, Ontario, Canada].

28. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report.*1894. Appendix VI. Meetings of farmers' institutes. 1894. 19:219-22.
• ***Summary:*** These meetings are held in January of each year and divided geographically into various divisions. Division 2 is the responsibility of "C.A. Zavitz, B.S.A., L. Patton and D.W. Beadle." A table shows that from Jan. 2 to Jan. 19 they held eleven meetings of one or 1½ days each (the one day meetings started at 10:30 a.m. and the 1½ day meetings started at 1:00 p.m.) in the following towns: Parkhill, Forest, Brigden, Petrolea, Appin, Glanworth, Brucefield, Exeter, Coldstream, St. Mary's, and New Hamburg. The county in which each town is located is also given.

29. Zavitz, C.A. 1894. Report of the experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 19:53-130. For the year 1893. See p. 79.
• ***Summary:*** The section titled "Beans, comparative test of 17 varieties" (p. 79), states: "In 1893, 17 varieties of beans were grown on plots side by side... Each plot was one one-hundred and-sixtieth of an acre. The beans were planted in rows 25 inches apart on May 22nd..."

A table shows the names of the 17 varieties and the yield of each. "Yellow Soy" yielded 20.4 bushels/acre and Edamaine [Edamame] yielded 7.7 bushels/acre. The seed of the Yellow Soy was obtained from the United States, and that of the Edamaine [sic], a fodder plant, was obtained from the Kansas Experiment Station [from Prof. Charles C. Georgeson]. "Other varieties [sent by Georgeson] which did not mature their seed were Yamagata, Cha Daidzie [sic, Yamagata Cha-Daidzu], Kiyusuke Daidzie [sic, Kiyusuke Daidzu; both soy bean varieties, the first having a brown seed coat] and Black Podded Adyuski [sic, Adzuki]. These varieties will be tested again in another year.

Note 1. This is the 2nd earliest document seen (Jan. 2010) that clearly refers to soybeans in Canada, or in Ontario province, Canada, or to the cultivation of soybeans in Canada, or in Ontario province, Canada (May 1893). The source of these soybeans was the United States, probably from Kansas.

Note 2. This is the earliest document seen (Jan. 2010) by or about C.A. Zavitz in connection with soybeans. Zavitz apparently does not realize that Yamagata Cha-daidzu and Kiyusuke daidzu are the names of soja bean varieties (see p. 79).

Note 3. This is the earliest document seen (Jan. 2010) in which C.A. Zavitz states that he obtained soybeans from Kansas. Between 1890 and 1893 the Kansas Agricultural Experiment Station and Prof. Charles C. Georgeson who worked there published more than twenty articles on soybeans; Prof. Zavitz probably read at least one of these before he contacted Kansas to request soybean seeds.

Note 4. Bound at the back of this volume is the 15th "Annual Report of the Ontario Agricultural and Experimental Union." Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

30. Zavitz, C.A. 1894. Report of experiments in agriculture. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 19:246-69. For the year 1893.
• ***Summary:*** This report is part of the 15th "Annual Report of the Ontario Agricultural and Experimental Union," bound at the back of this volume. The 15th annual meeting of the Ontario Agricultural and Experimental Union was held at the Agricultural College [OAC], Guelph, on December 21st and 22nd, 1893, commencing at 10 a.m. on the 21st. The report describes experiments conducted by Ontario farmers in cooperation with the Ontario Agricultural College.

In the section titled "Report of committees," Mr. Zavitz reported (p. 223) that he and Mr. E. Lick had visited the Minister of Agriculture and requested that the "Union" grant be increased from $400 to $700 per year. They were very kindly received by the Hon. Mr. Dryden, "who spoke very favorably of the work being done by the Association and also increased the grant to $650."

Zavitz begins his report (p. 246): "There were thirteen distinct co-operative experiments in agriculture conducted by the Association during the past year, two were with fertilizers, three with fodder crops, three with root crops and five were with grain crops. Two years ago 2,642 packages of fertilizers and seeds were distributed, one year ago 5,688 packages were distributed and during the present year no less than 7,181 packages were sent out to members of the 'Union' and other interested farmers throughout the province. Nothing was sent out but choice material, both in regard to quality and variety. The seeds and fertilizers were forwarded to twelve hundred experimenters over Ontario, and not one complaint has been received from the

experimenters regarding the material of the material sent or the manner of preparing the same. The majority of those who carried on experiments in 1893 forwarded us reports after the crops were harvested..."

"The following circular was sent out in February to members of the Association, previous experimenters and to others who applied for seed of different kinds: 'Dear sir,– The members of the Ontario Agricultural and Experimental Union, along with other interested farmers over Ontario, are carrying out a system of co-operative experiments in agriculture. This work was started upon its present plan in the spring of 1886 with twelve experimenters, who received the grains and fertilizers, carried out the necessary instructions, and reported the results at the end of the season. For the first two or three years the experiments were confined almost entirely to the ex-students of the Agricultural College, but as many other farmers expressed a desire to join in the work, the invitation was extended to them also... on the condition that they would be careful to follow the necessary instructions and report the results of the tests after harvest. The work has steadily increased... In 1891 there were 2,642 plots and in 1892 there were upwards of 5,000 plots used for these co-operative tests over Ontario."

A table shows the number of promising varieties of each crop tested, the number of plots for each, and the size and shape of each plot–typically 2 rods by 1 rod (0.0125 square acres; 1 rod = 5.50 yards, 16.5 feet, or 5.029 meters). Soy is not mentioned. Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

31. Thompson (T.) and Son Co. 1894. We might give you a much longer list than this one... (Ad). *Evening Star (Toronto, Canada).* June 21. p. 4.
• ***Summary:*** Groceries:... "Tomato Catsup 10¢, large bottle. Worcestershire Sauce 8¢ bottle. Epps' Cocoa 10¢ package."

Note: This is the earliest document seen (Jan. 2010) that mentions Worcestershire sauce (whose main ingredient was soy sauce) in Canada.

32. *Chicago Daily Tribune.*1894. Japanese substitute for coffee. The soy bean declared to be equal to the genuine article (Abstract). July 7. p. 14.
• ***Summary:*** From New York *Sun:* "The agricultural experiment station of the Purdue University of Indiana has issued a circular setting forth the qualities of the soy, or soja bean and advocating its use as a substitute for coffee. The soy bean (soja hispida) is a Japanese plant which can be grown in this country.

Note: This is a summary of: Plumb, Charles S. 1894. "A substitute for coffee." *Purdue University (Indiana) Agric. Exp. Station, Newspaper Bulletin* No. 6. 4 p. May 9.

To that is added new information about chicory. "Inquiry among coffee merchants in this city discovered that the soy bean as a substitute for coffee was not commercially or otherwise known here. According to an expert who has been a coffee taster for nearly a quarter of a century, chicory is the only thing which can be considered a substitute for coffee. By substitute he means adulterant, using the word in a good sense... Chicory,... mixed with a good grade of coffee is a better and more wholesome drink than some of the low-grade coffees. The expert said that while he and his partners sold pure coffee to their customers unless they ordered otherwise, they used coffee mixed with chicory themselves.

"Chicory, although considered the best adulterant, is not the only one. Several of the cereals play a part in the preparation of cheap coffee, if they do not pretend to be substitutes. It is said that the entire Canadian pea crop, and a large part of the Michigan crop are devoted to the adulteration of coffee. Rye and barley are also used as adulterants."

33. Mills, James. 1895. Report of president. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 20:ix-xxiv. For the year 1894. See p. xv-xvi.
• ***Summary:*** In the section titled "Experimental plots, etc." president Mills draws Zavitz' work to the attention of the government via a table which shows the growth in the number of plots used in experimental work from 1886 to 1894. That number grew from 56 in 1886, to 464 in 1889, to 1,045 in 1891, to 1,705 in 1894. President Mills also pointed out that during the last four years (1890 to 1894) the Experimental Department had distributed over 23,000 packages of choice grain throughout Ontario. province. He concluded that section: "I commend the report of Mr. Zavitz, our experimentalist, in Part IV of this volume, as one of the most valuable reports ever issued by our experimental department."

A photo (facing p. viii) shows the college officer and staff, including Prof. Zavitz. Address: President, Ontario Agricultural College [Guelph, Ontario, Canada].

34. Zavitz, C.A. 1895. Report of the experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 20:63-128. For the year 1894. See p. 86.
• ***Summary:*** In the section titled "Beans, comparative test of 13 varieties" (p. 85-86), a table shows that two soy bean varieties were tested for yield in 1893 and 1894. Yellow Soy produced the equivalent of 20.4 bu/acre in 1893 and 15.56 bu/acre in 1894, for a 2-year average of 17.98 bu/acre. Edamaine [sic, Edamame] produced the equivalent of 7.6 bu/acre in 1893 and 6.94 bu/acre, for a 2-year average of 7.44 bu/acre. For Yellow Soy, a measured bushel weighed 59.13 lb and Yellow Soy yielded 1.82 tons/acre of straw. For Edamaine, a measured bushel weighed 59.00 lb and Edamaine yielded 1.19 tons/acre of straw.

Bound at the back of this volume is the 16th "Annual Report of the Ontario Agricultural and Experimental Union" (p. 243-301). In a "Report of experiments in agriculture," presented by C.A. Zavitz, B.S.A., Director, Ontario Agricultural College, Guelph (p. 276-301), 12 experiments on various crops and soils are described; soy is not mentioned. Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

35. *Evening Star (Toronto, Canada).*1895. The label on the bottle: Crosse & Blackwell, and Lea & Perrin may be heard from. Said to be on the trail of those who refill bottles: An effort to be made to stop the fraud. March 21. p. 1.
• ***Summary:*** "There is a species of fraud that has been practiced generally all over, that will likely before long be suppressed, for steps have already been taken in that direction, not only in Toronto, but also in other parts of the province."

An Englishman is here in the interest of several English sauce and pickle manufacturers, who think that their bottles and their labels are being too freely used to hold bulk articles of an inferior quality.

The label and the bottle: You have noticed in restaurants and hotels, even of good name, that the bottles containing Worcester sauce, and Crosse & Blackwell's pickles have labels that look as though they had been roughly handled," and that the contents of the bottle is of inferior quality.

Many of the people who fill these trade-marked bottles are apparently unaware that what they are doing is illegal. The Englishman is making a list of the names and addresses of the proprietors of such establishments.

36. *Evening Star (Toronto, Canada).*1895. Ketchups–pickles. Recipes for making choice relishes. July 13.
• ***Summary:*** Recipes are given for: Cold tomato ketchup. Tomato soy. Neither recipe calls for soy as an ingredient.

37. *Prairie Farmer.*1895. New fodder crops. 67(41):7. Oct. 12.
• ***Summary:*** The article begins: "The experiment station at Guelph [Ontario], Canada, has been experimenting with some new fodder plants. A report of the work says: 'Several specimens of new and valuable fodder plants are in the display, among which the following may be mentioned: The Yellow Soy bean, which is one of the best of fifteen varieties of this plant brought from Japan to the state of Kansas a few years ago, and which were obtained by the Agricultural College from that State three years ago. It produces one of the richest grains known among all cultivated plants. It is used to a certain extent for green fodder and also allowed to ripen for the grain. It has been found to thoroughly mature in this climate."

Note: The report to which this article refers is probably: Zavitz, C.A. 1894. "Report of the experimentalist." *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 19:53-130. For the year 1893. See p. 79.

38. Zavitz, C.A. 1896. Report of the experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 21:191-269. For the year 1895.
• ***Summary:*** In the section titled "Beans–Comparative test of 13 varieties" (p. 218), a table shows that two soy bean varieties were tested for yield in 1893, 1894, and 1895. In 1895 they were sown on June 3 and again on June 24. Yellow Soy produced the equivalent of 20.4 bu/acre in 1893, 15.56 bu/acre in 1894, and 12.30 bu/acre in 1895, for a 3-year average of 16.09 bu/acre. Edamaine [sic, Edamame] produced the equivalent of 7.6 bu/acre in 1893, 6.94 bu/acre in 1894, and 7.79 bu/acre in 1895, for a 3-year average of 7.44 bu/acre.

In the section titled "Fodder crops–8 varieties," a table (p. 262) includes Yellow Soy Beans. Average height of crop: 22.8 inches. Average yield per acre: 11.26 tons. General appearance as a valuable crop for fodder purposes: 8 out of 10 (where ten is the least valuable). Relished by cattle when fed in the stable: 3 out of 10 (where 10 is the least relished).

Bound at the back of this volume is the 17th "Annual Report of the Ontario Agricultural and Experimental Union" (p. 345-432). Zavitz's long and detailed report is on pages 366-93, but soy is not mentioned. This latter report is a summary of trials by farmers on their farms; it went to all cooperating farmers. Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

39. *Farming (Toronto, Ontario, Canada).*1896. Mr. C.A. Zavitz. 14(4):292-93. Dec.
• ***Summary:*** "Mr. C.A. Zavitz, of the Ontario Agricultural College, is perhaps, for so young a man, the most widely know agriculturalist in the province. As experimentalist to the Ontario Agricultural College, secretary of the Agricultural and Experimental Union, and director of co-operative experiments in agriculture for Ontario, Mr. Zavitz is undoubtable doing a work which directly brings him into touch with more farmers in their actual business as farmers than any other man in the province. Mr. Zavitz was born in 1863, at Coldstream, Middlesex county, where his father still lives. Having received a good public and high school education he attended the Agricultural College, where he spent three years and had a most brilliant career, not only taking a full part in all the wholesome student-life of the college, but also pursuing his studies so well that he gained enough of prizes to establish for himself a first-class scientific library.

"Immediately at the closing of his college courses in June, 1886, Mr. Zavitz was appointed assistant superintendent of the experimental department of the

college. After serving in this capacity for seven years he was appointed to the position of experimentalist, which office he still holds. But Mr. Zavitz is almost as well known for his work in connection with the Ontario Agricultural and Experimental Union as he is for his work directly connected with the college. For nine years he has been editor to the union, and for ten years secretary of the committee on co-operative experiments, and for the same length of time director of the experiments.

"When Mr. Zavitz first became connected with the experimental work of the college there were only fifty-six field plots in the experimental department, and there was no co-operative experimental work conducted in Ontario. Since that time the whole system of experimental work has been a rapid but also a sustainable growth, until now there are about 2,200 field plots in the experimental department of the college, and 11,124 plots in connection with the co-operative work of the Experimental Union, the latter of which are located on 2,260 different farms situated in as many different parts of Ontario.

"During the last ten years the publication of the results of these experiments has taken up 44 distinct bulletins, 580 pages of the annual reports of the O.A.C., and 180 pages of the annual reports of the Agricultural and Experimental Union. Mr. Zavitz is an enthusiastic worker in any sort of work that he takes up. In institute work, for example, he has taken part in no fewer than 220 separate sessions. He has also done a great deal towards placing the agricultural work of the college before the public by means of exhibits at leading fairs, and the very striking and attractive exhibit of Ontario agriculture which was made at the World's Fair, Chicago [Illinois], was designed and arranged by him."

Contains a portrait photo with the caption: "C.A. Zavitz, B.S.A., Experimentalist, O.A.C." He looks very youthful despite his complete baldness and a large mustache.

40. Zavitz, C.A. 1897. Report of the experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 22:117-202. For the year 1896. See p. 193-94.
• ***Summary:*** The section titled "Fodder crops" (p. 193-94) contains a table showing the results of eight kinds of crops for two years. Each plot was 1/100 of an acre, and the experiment was conducted in duplicate each year. Concerning Yellow Soy Beans: Average height of crop in 1896: 25.0 inches. Average height during two years (1895 and 1896): 23.9 inches. Average yield per acre in 1896: 6.85 tons. Average yield per acre during two years (1895 and 1896): 9.06 tons.

Note: Rape produced nearly twice as much green crop per acre as any other crop–18.28 tons in 1896. Soy beans gave the fourth best yields. Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

41. *Stanstead Journal (Rock Island, Stanstead, Quebec, Canada).*1897. Farm, field and garden: A new fodder crop. June 3. p. 2.
• ***Summary:*** "The soja bean is one of the newer fodder plants that are not sufficiently appreciated, according to The American Agriculturalist, authority for the following: The soja bean is a leguminous or cloverlike plant, which seems to possess great facility for getting its nitrogen from the air. The dry matter in either the green fodder or straw of the soja bean contains twice as much fat and protein as in fodder corn, while the grain is hardly exceeded in richness by cottonseed meal. Indeed, it is probably true that 'these beans are the richest known vegetable substance,' and as they can be raised in any climate or soil that will mature corn, this crop enables the northern farmer to raise concentrated feed instead of buying it.

"The medium green variety is best for forage, being leafy and succulent. In fairly fertile soil it will produce 10 to 12 tons of green fodder per acre. It should be sown in drills 2 1/2 feet apart, using 1 to 1 1/4 bushels of seed per acre. Sow about corn planting time and cultivate freely early in the season. It will produce a valuable fodder for stall feeding in August or early September, to be fed green or put into the silo in the proportion of one part soja bean to two parts of corn. Such silage is a balanced feed for milk cows. The black variety is a good fodder plant, but not equal to the green. Both kinds will ripen seed wherever the larger kinds of corn mature. Owing to the wonderful root development of the medium green variety, it has an admirable effect on the soil when the stubble is plowed under. Like the notion of alfalfa on land adapted to that crop, the soja bean brings to the upper status of soil plant food from below."

Note 1. This is the earliest document seen (Feb. 2007) concerning soybeans / soya beans in connection with (but not yet in) Quebec.

Note 2. Stanstead is a town in the Eastern Townships of Quebec. Stanstead is located on the Canada-United States border across from Derby Line, Vermont.

42. *Consular Reports [USA].*1897. Tariff of Canada, 1897. 55(205):151-232. Oct. See p. 159. [Eng]
• ***Summary:*** This new Canadian tariff comes with an index. Page 159: "67. Pickles, sauces and catsups, including soy [sauce], thirty-five per cent ad valorum."

43. *Stanstead Journal (Rock Island, Stanstead, Quebec, Canada).*1897. Dairy and creamery. Dec. 2. p. 2.
• ***Summary:*** "Cowpea hay and soja bean contain more protein or nutritious elements than clover does. Cowpeas are 50 per cent richer in protein than wheat bran is, while

soja beans are richer even than linseed meal in this milk and muscle making element."

44. Zavitz, C.A. 1898. Report of the experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 23:153-213. For the year 1897.
• ***Summary:*** The section titled "Miscellaneous crops" at the end of this Report (p. 212-13) states: "Besides the systematic experiments which have been reported upon in the foregoing table, there were quite a number of minor experiments, the result of which cannot be place in tabulated form to advantage. Under the heading might be mentioned experiments with flax, hemp, pea-nuts, ground almonds, horse beans, soja beans, tares, winter rye, winter barley, Speltz spring wheat, sand buckwheat, prickly comfrey, schaline, flat pea *(Lathyrus Sylvestrus)*, collards, teosinte, ramie, Australian salt bush, lupines, lentils, banana field beans, cow peas, sweet clover, chicory, field pumpkins, and field squashes." This is the only place that soja beans or soy beans are mentioned.

The Conclusion (p. 213) notes: "The plots, which now number upwards of 2,000, were admired by the thousands of farmers who visited our College during the past summer." Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

45. Grange Wholesale Supply Co., Ltd. 1898. Grocery specials (Ad). *Evening Star (Toronto, Canada).* Feb. 15.
• ***Summary:*** "Worcestershire sauce. Lorimer's imported, 9¢ bottle." Address: 126 King St. East, Toronto.

46. *Times (London).*1898. "Holbrook's Worcestershire sauce," Limited. United States of America and Canadian rights (Ad). March 31. p. 3, col. 1.
• ***Summary:*** This is subscription for shares in a new company. "Share capital: £100,000, divided into 50,000 cumulative six per cent preference shares of £1 each–£50,000 and 50,000 ordinary shares of £1 each–£50,000. Total £100,000." The names of the directors and bankers are given. Address: [England].

47. *Times (London).*1898. The money market. March 31. p. 4, cols. 2-4.
• ***Summary:*** "Holbrook's Worcestershire Sauce (Limited) (United States of America and Canadian rights) has been formed with a share capital of £100,000... to acquire the trading rights in the sale of 'Holbrook's Worcestershire Sauce' for the United States of America and Canada from the Birmingham Vinegar Brewery Company, 1897 (Limited)."

48. Saunders, Wm. 1898. Report of the director and acting agriculturist. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 5-89. For the year 1897. See p. 39. Appendix to the Report of the Minister of Agriculture.
• ***Summary:*** The section titled "Experiments with Soja beans *(Soja hispida)* (p. 39) begins: "The Soja or Soya bean is an annual leguminous plant, somewhat resembling the upright varieties of cow pea. These beans are extensively used in Japan as food, both for men and animals. They may also be used as a soiling crop, as hay, and as ensilage. There are several varieties of these beans, some of which are much earlier than others, one late variety was tried which appears to be of little or no value, and one early variety which gave a large crop and promises to be exceedingly useful." The soil and the late variety are then discussed.

"Early Soja beans. These were received from Peter Henderson & Co., seedsmen of New York, in the spring of 1897." Plants were sown May 25. Vines were well podded at harvest. The 12 x 15 foot plot yielded the equivalent of 15 tons 855 pounds of fodder per acre. "As this plant is said to endure hot, dry weather, it is hoped that it may be found useful to grow for ensilage in those districts where horse beans have not succeeded. As a nutritious and nitrogenous food for animals, the analyses which have been published of this plant, show that it compares favorably with the horse bean. We hope to give this promising fodder plant a more extended trial during the coming season."

Note: This is the earliest document seen (Aug. 2000) that contains a systematic description of the testing of soybean varieties in Canada–first conducted at the Central Experimental Farm in Ottawa, Ontario province. Address: Director, LL.D., F.R.S.C., F.L.S., Experimental Farms, Ottawa, ONT, Canada.

49. Zavitz, C.A. 1899. Report of the experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 24:119-83. For the year 1898. See p. 174, 181.
• ***Summary:*** The section titled "Fodder crops" (p. 174) contains a table listing six varieties of fodder crops that have been tested for 4 years in succession on plots of 1/100 acre in size. One of the crops was Yellow Soya Beans. Average height of crop in 1898: 23.0 inches. Average height in four years: 25.5 inches. Average yield per acre in 1898: 8.07 tons. Average yield per acre in four years: 8.52 tons. Egyptian peas gave the largest average yield of green crop per acre in 4 years (9.0 tons), followed by Grass peas (8.88). "The Yellow Soya bean, which has proven to be one of the best soja beans which have been grown at this place, occupies third place in production of green crop per acre" [8.52 tons].

In the section titled "Miscellaneous crops" we read (p. 181): "Soya, Soja, or Japanese beans. Five varieties of Japanese beans have been grown for two years in our experimental grounds. Most of these varieties were brought out from Japan by Prof. Brooks of Amherst University,

Massachusetts. Some of them are doing well in the State of Massachusetts. They produce grain which is the richest of any produced on the farm. Our experiments, so far, are not of sufficient extent to justify our saying much in regard to the place these beans are likely to occupy in the future of agriculture in Ontario. It might be stated, however, that in yield of grain per acre, the Yellow Soya beans, the seed of which we originally obtained from the state of Kansas, stands highest, and that the Early White, Medium Black and Medium Green gave yields in the order named. The seed of the last three were secured from Prof. Brooks. In yield of green crop per acre the largest returns were secured from the Yellow and from the Medium Green varieties of Soya beans." Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

50. *Examiner (Sherbrooke, Quebec, Canada).*1899. Farm and garden: The soy bean. Cultivated like corn, the Medium Early variety recommended. July 21. p. 3.
• ***Summary:*** "The soy bean is one of the staple crops of Japan which is now becoming quite commonly grown in this country." Discusses the findings of Prof. Rane at the New Hampshire Agric. Exp. Station. An illustration shows three varieties of soy beans–early, medium, and late.

51. Bedford, S.A. 1899. Experimental farm for Manitoba. *Annual Report of the Experimental Farms (Ottawa, Canada)* p. 271-325. For the year 1898. See p. 298-99.
• ***Summary:*** The section titled "Experiments with fodder crops" (p. 298) states: Early in the season, seed of Japanese Millet, Early Soja Beans and Horse Beans were received from the Director with instructions for sowing. The chief object in view in these tests was to gain information as to the relative usefulness of these plants for fodder purposes in this climate, and to ascertain the weight of crop obtainable from each when sown in different ways."

The section titled "Early soja beans" (p. 298-99) states: "This plant can probably be utilized as a soiling crop also for hay and ensilage. During the past season the Early Soja Beans have not proved as productive as horse beans here... There were only a very few plants with pods on, and the pods were only partly grown." A table shows the "Yield of early soja beans sown at different distances." These beans were planted in three plots (each 1/20 acre) in rows. The yield of green matter per acre ranged from 7 tons 1,400 lb to 8 tons, 560 lb. The lowest yield was from plants sowed 3 feet apart, and the highest yield from plants sowed 2 ft apart.

Note: This is the earliest document seen (Jan. 2009) concerning soybeans in Manitoba province, Canada, or the cultivation of soybeans in Manitoba province. This document contains the earliest date seen for soybeans in Manitoba province, or the cultivation of soybeans in Manitoba province (1898). The source of these soybeans was probably the Central Experimental Farm in Ottawa, and was probably the same material reported by Wm. Saunders in 1898 and 1899. The Central Experimental Farm, in turn, got its soybeans from Peter Henderson & Co., seedsmen of New York, in the spring of 1897. Address: Superintendent, Experimental Farm, Brandon, MAN, Canada.

52. MacKay, Angus. 1899. Experimental farm for the North-West Territories. *Annual Report of the Experimental Farms (Ottawa, Canada)* p. 327-73. For the year 1898. See p. 347.
• ***Summary:*** The section titled "Early soja beans" (p. 347) states: "Three plots were first sown May 15 and cut by frost May 27. They were sown again on May 28th. The first plot was sown in drills 2 feet apart, the second 2½ feet apart and in the third the drills were 3 feet apart. All the plots made a fair growth and were just forming pods when destroyed by frost on September 8th." The frosted beans were weighed after cutting. The highest yield (1,650 lb/acre) was obtained from seeds planted in drills 2 feet apart. "The weights of these frosted vines gives scarcely a fair idea of what the weights would have been had frost come later."

Note 1. According to a letter dated 8 March 1991 to Soyfoods Center from R.K. Downey (Head Oilseeds Section, Agriculture Canada Research Station, 107 Science Crescent, Saskatoon, Saskatchewan, S7N 0X2, Canada. Phone: 306-975-7014), in 1898 "the Northwest Territories included Saskatchewan and Alberta, and parts of Manitoba. Saskatchewan became a province in 1905. Indian Head is now a town in south Saskatchewan province, 44 miles east of Regina, on the #1 highway [highway #1, the Trans-Canada Highway] between Regina and Winnipeg. Indian Head was one of the first Experimental Farms established in western Canada by the Experimental Farm Service which is now the Research Branch of Agriculture Canada. I think I can safely say that the source of the soybeans grown at Indian Head would have been the Central Experimental Farm in Ottawa, and would have been the same material as reported by Wm. Saunders in 1898 and 1899."

Note 2. We know of no record showing that soybeans have ever been grown in what is today the Northwest Territories of Canada, the southern border of which is 60º north latitude. This may be too far north for soybeans to mature. Indian Head, by comparison, is located at about 50º north latitude. Yet it is interesting to note that in Sweden, soybeans have been grown successfully at Uppsala (60º), Fiskeby-Norrköping 58.5º, and the Kalmar-Oland region (56-57º; here they are grown commercially).

Note 3. This is the earliest document seen (Jan. 2010) concerning soybeans in Saskatchewan province, Canada, or the cultivation of soybeans in Saskatchewan province. This document contains the earliest date seen for soybeans in Saskatchewan province, or the cultivation of soybeans in Saskatchewan province (15 May 1898). The source of these

soybeans was probably the Central Experimental Farm in Ottawa, Ontario, Canada, which received their soybeans from Peter Henderson & Co., seedsmen of New York, in the spring of 1897 (see Saunders 1898).

Note 4. Mr. Angus MacKay was the first superintendent of the experimental farm in the Northwest Territories, from 1888 to 1913. He accompanied Dr. William Saunders when Saunders chose the site for the new farm. MacKay had moved to the Indian Head area in 1882 and had farmed there since that time. In May 1887, Mr. MacKay was invited by the Minister of Agriculture, the Hon. John Carling, to spend some time at the Central Experimental Farm in Ottawa, to become better acquainted with the aims of the experimental farms (W.E. Johnson and A.E. Smith. 1986. *Indian Head Experimental Farm, 1886-1986.* Research Branch, Agriculture Canada. Historical Series No. 23. p. 10). Address: Superintendent, Experimental Farm, Indian Head, Assiniboia, NWT, Canada.

53. Robertson, R. 1899. Experimental farm for the Maritime Provinces. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 241-61. For the year 1898. See p. 255.

• ***Summary:*** The section titled "Experiments with soja beans" (p. 255) states: "The seed used in these experiments was of a very early variety of soja bean from Japan, sent by the Director. The experiments were planned with the object of finding out the best distance apart for growing this variety of bean, and also its value as a forage crop... The seed was sown 5th June." The best yield, 5 tons 600 pounds, was obtained by sowing the beans in drills 2 feet apart. Distances of 2.5 and 3 feet gave lower yields.

Note 1. This is the earliest document seen (Jan. 2010) concerning soybeans in Nova Scotia province, Canada, or the cultivation of soybeans in Nova Scotia province. This document contains the earliest date seen for soybeans in Nova Scotia province, or the cultivation of soybeans in Nova Scotia province (5 June 1898). The source of these soybeans was Japan.

Note 2. Robertson was the first superintendent of the experimental farm for the maritime provinces, at Nappan, Nova Scotia, serving from 1897-1913. Address: Superintendent, Experimental Farm, Nappan, Nova Scotia, Canada.

54. Saunders, Wm. 1899. Report of the director and acting agriculturist. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 5-91. For the year 1898. See p. 51.

• ***Summary:*** The section titled "Experiments with Soja beans *(Soja hispida)"* (p. 51) states: "The Soja or Soya bean was first grown at the Central Experimental Farm as a fodder plant in 1897, when two varieties, a late and an early sort were tested. The early variety, the seed of which was obtained from Peter Henderson & Co., seedsmen, of New York, proved very promising and produced on the small plot grown a weight of fodder equal to 15 tons 855 lb per acre. In this case the beans were sown in rows 9 inches apart. Further experiments have been tried with this early ripening Soja bean during the past season, when two sets of plots were sown at different dates and of different widths in the rows with the object of finding out the best time to plant and the most profitable method of planting."

"From these experiments it would appear that the best results may be looked for from planting these beans about the middle of May in drills 14 inches apart."

Note: Wm. Saunders was director of the entire system of experimental farms across the Dominion of Canada. But he was located at, and did his work at, the Central Experimental Farm in Ottawa, Ontario. Address: Director, Dominion Experimental Farms, Ottawa, ONT, Canada.

55. Sharpe, Thomas A. 1899. Experimental farm for British Columbia. *Annual Report of the Experimental Farms (Ottawa, Canada)* p. 375-412. For the year 1898. See p. 392.

• ***Summary:*** The section titled "Soja beans" (p. 392) states: "These were sown in drills at different distances apart. The growth was from 35 to 40 inches high... The branches were well loaded with pods containing from two to four beans each. This crop requires a longer season to ripen the bean, but it makes a fine fodder for green feed, the cattle and horses preferring it to any other food. All of it was fed green as our silo was full and the weather was unfavourable for curing it" [to make hay]. The highest yield from 3 plots was obtained from a variety planted in drills 2 feet apart. Sown on April 27, the plants were cut on Oct. 5, when the beans were in a soft green state. The straw was 30-40 inches long and the yield of fodder was 6 tons and 800 lb per acre.

Note 1. This is the earliest document seen (Jan. 2009) concerning soybeans in British Columbia, Canada, or the cultivation of soybeans in British Columbia. This document contains the earliest date seen for soybeans in British Columbia, or the cultivation of soybeans in British Columbia (27 April 1898). The source of these soybeans was probably the Central Experimental Farm in Ottawa, and was probably the same material reported by Wm. Saunders in 1898 and 1899. The Central Experimental Farm, in turn, got its soybeans from Peter Henderson & Co., seedsmen of New York, in the spring of 1897.

Note 2. The last section on p. 392, titled "Experiments with clover seed inoculated with Nitragin and without Nitragin," contains an early reference to the use of this commercial product. Address: Superintendent, Experimental Farm, Agassiz, BC, Canada.

56. Shutt, Frank T. 1899. Report of the chemist. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 123-165. For the year 1898. See p. 124, 147-48.

• ***Summary:*** The section titled "Forage plants, fodders and feed stuffs" (p. 124) states: "3. Soja beans as a forage crop for the silo. This is practically a new field crop and has been recommended for ensiling with Indian corn to supply nitrogenous matter and thus make the ensilage nearer a 'balanced' ration. Analyses are given depicting the composition of the beans grown under different methods of seeding and culture."

The section titled "Soja Beans *(Soja hispida)"* (p. 147-48) states: "During the season of 1897, this annual legume was first tried as a field crop on the Central Farm. The results obtained gave promise of it becoming a valuable fodder for siloing in conjunction with corn." Tables show: (1) "Soja beans–Percentage composition of fresh material." (2) "Percentage composition of legumes" (mostly in bloom) including soja beans, alfalfa, bokhara clover, broad windsor beans, cowpea, English horse beans, serradella, and telephone beans. Address: M.A., F.I.C., F.C.S., Chemist, Experimental Farms, Ottawa, ONT, Canada.

57. *Examiner (Sherbrooke, Quebec, Canada).*1900. Farm and garden: Facts from the field. Soy bean stands drought, defies bugs and is richest of feed. Oct. 15. p. 3.
• ***Summary:*** "The Kansas experiment station began raising soy beans in 1889 and has raised them every year since, in 1899 having 70 acres in this crop." A long summary of an article about soy beans in Kansas is given.

58. Bedford, S.A. 1900. Experimental Farm for Manitoba. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 283-335. For the year 1899. See p. 310.
• ***Summary:*** The section titled "Experiments with early soja beans and horse beans" (p. 310) states: "A further trial was made of these two leguminous plants, but the returns were not as large as last year. During the past two seasons both Soja and Horse Beans have been tried for ensilage, but with very poor success. In both years the plants rotted in the silo and partly spoilt any corn coming in contact with them." The best yield from Early Soja Beans, 4 tons per acre green, was obtained from beans sown June 20 in rows 21 inches apart. They reached a height of 28 inches and were cut Aug. 31. Address: Superintendent, Experimental Farm, Brandon, Manitoba, Canada.

59. MacKay, Angus. 1900. Experimental Farm for the North-West Territories. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 337-88. For the year 1899. See p. 355.
• ***Summary:*** The section titled "Soja beans" (p. 355) states: "Plots 1/20 acre. Seed sown in rows at different distances apart. The beans were sown May 19, cut Sept. 13, and when partially dry were weighed and put in silo. The best yield per acre, 2 tons 1300 pounds, was from rows 28 inches apart, rather than 21 or 35 inches. The beans grew 25 inches high. All were slightly injured by frost in August." Address: Superintendent, Experimental Farm, Indian Head, North-West Territories, Canada.

60. Macoun, W.T. 1900. Report of the horticulturist. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 73-127. For the year 1899. See p. 101.
• ***Summary:*** In the section titled "Cover crops" (p. 100+), page 101 states: "Soja Beans:–sown in drills 6 inches apart on June 17, at the rate of 3 bushels per acre, came up June 24. Ploughed under on August 7. Average height 14 inches. Estimated yield per acre of green crop: 3 tons 446 pounds."

Note 1. This is the earliest document seen (May 2005) concerning the use of soy beans as a cover crop; it was done in Canada. This is also the earliest English-language document seen (May 2005) that contains the term "cover crops" (or "cover crop"). Address: Horticulturist, Central Experimental Farm, Ottawa, ONT, Canada.

61. Robertson, R. 1900. Experimental Farm for the Maritime Provinces. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 227-58. For the year 1899. See p. 246.
• ***Summary:*** The section titled "Experiments with soja and horse beans sown at different distances apart" (p. 246) states: The best yield of soja beans, 6 tons per acre, came from plants sowed in rows 24 inches apart, rather than 30 or 36 inches apart. Fertilizer was applied at the rate of 400 pounds per acre. Address: Nappan, Nova Scotia, Canada.

62. Saunders, Wm. 1900. Report of the director. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 5-51. For the year 1899. See p. 23.
• ***Summary:*** The section titled "Experiments with Soja beans *(Soja hispida)"* (p. 23) states: "Experiments have been conducted in the growing of an early ripening variety of Soja beans for fodder purposes for the past three years, with the object of finding out the best time to plant and the most successful method of planting. Four plots of one-fortieth acre each were used for this purpose. The soil was a sandy loam of medium quality but somewhat variable. The previous crop was pease. The land was gang-ploughed soon after harvest and ploughed again later in the autumn about 7 inches deep. In the spring of 1899 it received a dressing of barn-yard manure, about 12 tons per acre. This was spread and ploughed under about 6 inches deep and harrowed twice with the smoothing harrow before sowing."

The four plots were sown on May 31 and cut for ensilage on September 15. The best yield of green fodder, 12 tons 1,600 pounds per acre, was obtained from soja beans, sown in rows 21 inches apart. "Growth strong and even, very leafy, average height 40 to 44 inches. The pods

were well formed but the beans were still soft when the crop was cut."

Note: This is the earliest document seen (Jan. 2003) that uses the word "harrow" ("the smoothing harrow") in connection with soybean production. Address: Director, Dominion Experimental Farms, Ottawa, ONT, Canada.

63. Sharpe, Thomas A. 1900. Experimental Farm for British Columbia. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 389-425. For the year 1899. See p. 408.

• ***Summary:*** The section titled "Soja beans" (p. 408) states: Three plots were sown on May 1. The best yields per acre when cut green, 2 tons 1,680 pounds, were obtained from soja beans in drills (rather than hills) 35 inches apart. Height 30-34 inches. Pods fairly plentiful. Address: Superintendent, Experimental Farm, Agassiz, BC, Canada.

64. Shaw, Thomas. 1900. Soiling crops and the silo: How to cultivate and harvest the crops; How to build and fill the silo; and how to use the silage. New York: Orange Judd Company. xii + 366 p. Illust. 19 cm.

• ***Summary:*** This book is quite similar to another book written by the same author and published the same year by the same publisher, titled *Forage Crops Other than Grasses: How to Cultivate, Harvest and Use Them.*

The present book is divided into two parts: Part I is about soiling crops and Part II is about the silo and silage. In Part I, Chapter 6, titled "Leguminous plants other than clover" (p. 103-44) contains a long section on "The soy bean" (p. 118-28) with the following contents: Introduction. Distribution. Soil. Place in the rotation. Preparing the soil. Sowing. Cultivation. Feeding.

It begins: "The soy bean *(Glycine hispida)* has only been tested in this country during recent years. Its growth has been confined to comparatively limited areas, hence but a relatively small number of the agriculturists of the country have any knowledge of the plant, based upon practical experience."

The subsection on "Sowing" states (p. 125): "As a rule, what are known as the dwarf varieties are preferred for grain production in the north and the medium varieties are preferred in the south. Of the former the Early Dwarf is a favorite and of the latter the Medium Early Green. The last named variety has proved satisfactory when grown as soiling food as far north as Amherst, Massachusetts. The Medium Early Black is also in favor in many localities."

Full-page, black-and-white photos taken at the Minnesota University Experiment Farm show: (1) A man and a sheep standing in a field of soybeans. A sheep is pasturing on the plants (p. 120). (2) A farmer wearing a hat standing in a field of hip-high soybeans. The caption: "Soy beans for soiling" (p. 127).

In Part II, Chapter 1, titled "A history of siloing" (p. 245-57) states: "A silo is a structure designed for the preservation of food in the green and succulent form. The term is derived from the Greek word *siros* a pit for holding grain... Ensilage, or silage, as it is now more commonly called, is the green and succulent food preserved in a silo." It may be preserved in either uncut or cut forms. The early silos in Europe were large pits dug in the ground, with adequate drainage and covering to prevent the accumulation of liquids or water. Some early U.S. silos were patterned "after those built by Goffart, the great French siloist," whose silos were 39.4 feet long, 16.4 feet broad, and 16.4 feet deep. "But the laboriousness of the process made it irksome to those who adopted it, and, because of this American ingenuity, set to work to emancipate the siloist from the bondage of so much hard labor when curing green food."

The first modern silos were built in the form of largely above-ground structures, with walls of stone and at least part of the silo below ground level. "It is claimed that the first silo built in America on the modern plan was made in 1876 and that it was erected by F. Morris of Maryland." The period from 1880 to 1890 was marked by many trials, failures, and successes. Yet by the end of the 19th century some 100,000 successful silos had been constructed in the United States–the chief centers for silos being dairy centers such as New York, Pennsylvania, Wisconsin, and Illinois. The great success of the silo is due in large part to the "great extent to which Indian corn is grown in this country..." Ontario, Canada, played a major role in the evolution of the silo.

"It is now generally conceded that the first book ever written on the silo is from the pen of M. Auguste Goffart, an agriculturist of Sologne, near Orleans, in France. The manual of the Culture and Siloing of Maize is the title of the book in English." It appeared in 1877 and was translated into English in 1879 by J.W. Brown of New York City. "Because of M. Auguste Goffart's early, persistent and abundant labors in this work he has been frequently designated 'The father of modern silage.'"

"In 1875 'The French Mode of Curing Forage' was published in the annual report of the United States department of agriculture. This it is thought was the first discussion of the subject in the United States which treated it in a comprehensive and systematic manner, although previously various articles had appeared in the agricultural press. These related chiefly to European experience. Dr. J. M. Bailey published a work on the subject in 1880. Dr. Manly Miles of the Michigan Agricultural college wrote a work on silos, silage and ensilage which appeared in 1889. Prof. A.J. Cook then of the Michigan Agricultural college published in 1889 'The Silo and Silage' and in 1890 a revised edition of the same. This book treats of silos as then constructed and of silage, as then made, in a very practical

way. The 'Book on Silage' by Prof. F.W. Woll, of the Michigan Agricultural college, was published in 1899. It is by far the most comprehensive discussion of the question that has yet appeared from the pen of any American author."

In Part II, Chapter 5, titled "Crops suitable for the silo," the section on "Leguminous plants other than clover" (p. 327-28) discusses "the soy bean and the cowpea." The chapter on "Filling the silo" states (p. 338): "The soy bean should be harvested when the beans are more or less grown in the pods..."

The chapter on "Feeding silage" states (p. 359): "Attention should be given to the constituents of the meal fed so as to balance the ration. For instance, should the silage contain much of the seed of the soy bean, it would be proper to add corn, or some other carbonaceous meal, with much freedom."

Also discusses alfalfa (p. 86-98, 330), cowpea (128-38), lupines (p. 224), non-saccharine sorghums (kaffir corn, milo maize, dhourra, Jerusalem corn, teosinte; p. 51-67), prickly comfrey (p. 226), and spurry (p. 225). Thomas Shaw lived 1843-1918. Address: Prof. of Animal Husbandry, Univ. of Minnesota.

65. Zavitz, C.A. 1900. Report of the experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 25:101-29. For the year 1899. See p. 121-22.

• ***Summary:*** The section titled "Soy, Japanese beans" (p. 121-22) begins: "The Soy beans, which are also called Soja beans, have been grown for a great length of time in Japan and in South-eastern Asia... About eighteen years ago Prof. Georgeson, then connected with the Agricultural College in the State of Kansas, imported from Japan fifteen varieties of the Soy beans, with which he conducted practical experiments on the Experiment Station grounds and found that five of the varieties gave good results. These five varieties were imported from Kansas some seven years ago [i.e. in about 1892] for growing in our experimental plots. The Yellow Soy bean has given decidedly the best results among the five varieties which we obtained from Kansas. A few years ago, the Agricultural College of Massachusetts also imported a number of varieties of the Soy beans from Japan, and three of these have now been tested in our experimental grounds here at the College.

"The *Yellow Soy* bean which was imported from Kansas has given an average of eight tons of green crop per acre, being two and one-quarter tons per acre more than that produced from the common beans, and three and one-quarter tons per acre more than that produced from the horse beans. In each of the past three years the *Medium Green* Soy bean has given the largest yield of green crop per acre among the three varieties imported from Massachusetts, but each of these years the Yellow Soy variety has given better satisfaction than the Medium Green in yield of crop per acre, although the results in 1898 were practically equal. We hope to grow these two varieties in larger lots, in order that we can compare them thoroughly in regard to their qualities for green fodder and for hay.

"In the production of grain the Yellow Soy variety has produced the greatest yield of each of the tests made at the College. Of the different varieties tested during the past three years, the Extra Early Dwarf is the earliest, the Yellow Soy the second earliest, the American Coffee Berry the third earliest, and the Medium Green is the latest to reach maturity. In many of the localities in Ontario the Medium Green variety of Soy beans would be too slow in maturing to produce seed.

"In the spring of 1899 three varieties were sent out over Ontario in connection with the co-operative work, to find out how these varieties would succeed over the Province. The varieties distributed were the Medium Green Soy beans, American Coffee Berry and the Extra Early Dwarf Soy beans. The Medium Green and the American Coffee Berry gave upwards of twenty bushels of seed per acre, and the Extra Early Dwarf an average of about thirteen bushels per acre. The Yellow Soy bean was not included in the experiment, as the seed of that variety was not available at the time. Arrangements have been made, however, to secure seed of this variety from the Kansas Experiment Station, for 1900. We feel justified in making somewhat extensive experiments with the Soy beans on account of the strong claims made for these beans in a few places where they have been grown. The following is taken from the bulletin issued by the United States Department of Agriculture on the Soy bean as a forage crop:"

"The Experiment Station at Kansas is growing the Soy beans very extensively; they had no less than sixty acres in Soy beans this year."

"We understand that at least five complex food products are prepared from the Soy beans in Japan, although the beans are seldom used alone as a vegetable. They are also frequently dried and roasted, and used as a substitute for coffee."

Note 1. This is the earliest document seen (June 2005) concerning co-operative research on soy beans (one of two documents). This research was initiated and organized in 1899 by C.A. Zavitz of Ontario Agricultural College in Canada; he also recorded and compiled the results.

Note 2. This is the earliest English-language document seen (June 2005) that uses the word "co-operative" (or "co-operatives" or "co-op" or "co-ops" spelled with a hyphen) in connection with soy beans. Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

66. Zavitz, C.A. 1900. Co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union*,

*Annual Report* 21:6-37. For the year 1899. See p. 9, 16, 31-32.

• ***Summary:*** A table (p. 7) shows the number of distinct experiments in agriculture, number of experimenters, and number of satisfactory reports each year for 1886, 1888, and 1891-99. For 1886 these numbers were 1, 12, and 8. For 1888 they were 1, 90, and 40. For 1891 they were 12, 203, and 126. For 1895 they were 15, 1699, and 513. For 1899 they were 23, 3485, and 739. Thus, during these 14 years the Union made remarkable progress.

A table titled "List of experiments for 1899" (p. 9), under "Grain crops" includes "Testing three varieties of Japanese beans–3 plots."

In a long "List of experimenters" we read (p. 16) that the Japanese beans were grown by: (1) F.B. Doud, Branchton, Brant Co. (2) Simon Miller, Unionville, York Co. (3) Jno. D. Neilson, Thedford, Lambton Co. (4) O.A.C., Guelph, Wellington Co.

In the section titled "Conclusions" (p. 31-32), table 15 shows the results (based on 4 tests) of testing three leading varieties of Japan [soy] beans: Medium Green (estimated value 72), yielded 2.6 tons/acre of straw and 22.4 bu/acre of grain. American Coffee Berry (estimated value 100), 1.4 tons/acre of straw and 21.3 bu/acre of grain. Extra Early Dwarf (estimated value 86), 1.1 tons/acre of straw and 12.7 bu/acre of grain.

The text immediately below the table explains: "The Soy beans [sic] (Glycine hispida) is a leguminous plant native of Japan and China, and ranks very high from a chemical point of view. The plant is an annual, erect in growth and branches profusely. There are a large number of varieties, nearly all of which are too late for the conditions of Ontario. The different varieties are distinguished largely by the time required for the plants to mature and by the color of the seed; the yellow, the green, and the black, being the most common. The Soy beans are used for green fodder, silage, hay, pasture, and as a soil renovator, and the grain is used as a feed for live stock. These beans have been used as a food for man from the earliest times in Japan and China, and more recently in the European countries. They are not used as a food by themselves, but are made into different complex forms, of which five are quite common among Japanese, namely: natto, tofu, miso, yuba, shoyu.

"Conclusions.

"1. The Soy beans gave very good results in the Union experiments in 1899.

"2. The medium green Soy beans which gave the largest yield of grain per acre of the three varieties tested over Ontario in 1899, is the latest of the three varieties.

"3. The American Coffee Berry was the most popular variety with the experimenters when yield, time of maturity, etc., were all taken into consideration."

Note: This is the earliest report seen (Aug. 2002) in this periodical concerning soy beans. C.A. Zavitz is also secretary of the Ontario Agricultural and Experimental Union, and a member of its Committee on Agriculture (appointed at the last annual meeting). Address: B.S.A., Director of Co-operative Experiments in Agriculture, O.A.C. [Ontario Agricultural College], Guelph [Ontario, Canada].

67. *Otago Witness (New Zealand).*1901. Notes on rural topics: The soja bean. Sept. 18. p. 8.

• ***Summary:*** From *Agricola:* "The soja bean is a fodder plant that is thought very highly of in Canada and the United States, where it has been in cultivation for about five to seven years [sic, 135 years]. This leguminous fodder plant is a native of China and Japan, and though I have not seen it growing I gather from various reports that it has many good points to recommend it. Mr. Kinsella referred to it recently in his paper upon ensilage, and mentioned it as one of the substitutes for maize when a heavy green crop is desired in a climate unsuitable for maize. It was said a year or two ago that the soja bean plant had gained much favor with farmers in America, not as the result of a boom, but entirely upon account of its merits, and it was strongly recommended a few years ago as a suitable crop for the dry climate of Australia, but I cannot say whether it has caught on there or not. So many flattering things have been said about it that one is inclined to think it may prove to be no better than some other wonderful plants that have been boomed with disastrous results.

"A few years ago the Massachusetts Experiment Station gave the bean a trial, and reported it to be the richest known vegetable substance, being four times richer than maize corn. A hundred pounds of the latter contains 4½ lb of fat, while the same weight of soja beans contains nearly 19 1b of fat. An American farmer says that he has threshed 100 bushels per acre on a rich river flat. Another says it is certainly a grand forage plant, and withstands drought or excessive moisture. It is said to be well adapted for making ensilage, or silage, because it gives a heavy bulk of growth and being of such an oily nature is difficult to make into hay as it cures–that is, dries into hay, very slowly. It appears there are two varieties–the mammoth [Mammoth] and the dwarf [Dwarf]–and both are said to be so hardy as to be able to hold their own against flood, frosts, drought, grass and weeds. The bean itself is small, no larger than the vetch seed, smooth skinned, but not so hard as the horse bean. This bean, ground fine, is largely used in China and Japan in making the sauce called 'soy.'"

Note: This article is largely compiled from other articles previously published in New Zealand.

68. Bedford, S.A. 1901. Experimental Farm for Manitoba. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 337-89. For the year 1900. See p. 361.

• ***Summary:*** The section titled "Experiments with soja beans and horse beans" (p. 361) states: "Both of these were sown on May 19, and germinated at once; but the Soja Beans were completely destroyed by the frost of June 8, and the Horse Beans were uninjured." Address: Superintendent, Experimental Farm, Brandon, Manitoba, Canada.

69. MacKay, Angus. 1901. Experimental Farm for the North-West Territories. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 391-434. For the year 1900. See p. 404.
• ***Summary:*** The section titled "Experiments with soja beans" (p. 404) states that three plots of Soja beans were sown in rows in 1/20th acre plots on May 18. The highest yield, 8 tons 1,000 pounds per acre, was achieved from rows 21 inches apart. Length of straw: 32 inches. Address: Superintendent, Experimental Farm, Indian Head, Assiniboia, North-West Territories, Canada.

70. Robertson, R. 1901. Experimental Farm for the Maritime Provinces. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 279-311. For the year 1900.. See p. 297.
• ***Summary:*** The section titled "Experiments with soja and horse beans sown at different distances apart" (p. 297) states that the best yield of soja beans, 4 tons 1,900 pounds per acre, came from plants sowed in rows 28 inches apart, rather than 21 or 35 inches apart. Fertilizer was applied at the rate of 400 pounds per acre. Address: Nappan, Nova Scotia, Canada.

71. Saunders, Wm. 1901. Report of the director. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 5-66. For the year 1900. See p. 24.
• ***Summary:*** The section titled "Experiments with Soja beans *(Soja hispida)"* (p. 24) states: "Three plots of one-fortieth acre each were sown in rows, at different distances, viz.: 21, 28, and 35 inches apart, to gain information on the best distance for sowing to secure heaviest crops." The 28-inch distance was best, yielding 12 tons 400 pounds per acre of green fodder. Address: LL.D., Director, Dominion Experimental Farms, Ottawa, ONT, Canada.

72. Sharpe, Thomas A. 1901. Experimental Farm for British Columbia. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 435-75. For the year 1900. See p. 450-51.
• ***Summary:*** The section titled "Experiments with fodder plants" has a subsection (p. 450-51) which reads: "Soja beans. Three plots of this bean were sown in drills, one at 21 inches apart, one at 28 inches, and one at 35 inches. The medium distance, or 28 inches [yielding 3 tons 1,440 pounds per acre], appears to be about right here, unless the land is very fertile, when it would be better drilled in at 35 inches apart." Being very leafy, if sown to suit the conditions of the soil, it soon shades the ground. Address: Superintendent, Experimental Farm, Agassiz, BC, Canada.

73. Zavitz, C.A. 1901. Report of the experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 26:96-125. For the year 1900. See p. 108-09, 116-17, 120.
• ***Summary:*** The section titled "Soy, soja or Japanese beans" (p. 108-09) states: "About eighteen years ago, Prof. Georgeson, then connected with the Agricultural College in the State of Kansas, imported from Japan 15 varieties of the Soy Beans, with which he conducted practical experiments on the Experiment Station grounds, and found that five of the varieties gave good results. Seed of these five varieties was imported from Kansas some eight years ago for growing in our experimental plots; and the Yellow Soy Bean has given decidedly the best results among the five varieties which we obtained from Kansas. A few years ago, the Agricultural College of Massachusetts also imported a number of varieties of the Soy Beans from Japan, and three of these have been tested in our experimental grounds. For four years in succession we have tested the Yellow Soy variety which we obtained from Kansas, and the Medium Green, Extra Early Dwarf, and American Coffee Berry, which we obtained originally from Massachusetts. In the production of grain, the Yellow Soy variety has produced 19.2 bushels of grain per acre in the tests of 1900. Of the different varieties under experiment in recent years, the Extra Early Dwarf has been the earliest, the Yellow Soy the second earliest, the American Coffee Berry the third earliest, and the Medium Green the latest to reach maturity. In many of the localities in Ontario, the Medium Green variety of Soy Beans would be too slow in maturing to produce seed, except in very favorable seasons. We believe that the Yellow Soy variety will give good results in Ontario."

The section titled "Annual crops for pasture" (p. 116-17) states that 21 different crops were tested, including "yellow Soy beans," buckwheat, millet, Kafir corn, grass peas, cow peas, and rape. A table (p. 117) shows the results: As a pasture crop, Yellow Soy beans yielded 3.3 tons per acre in five cuttings, compared with 10 tons for hairy vetches (the highest yielders) and 7.2 tons for grass peas (the second highest).

The section titled "Some fodder crops" (p. 120) notes that for five years in succession, six fodder crops were carefully tested. Yellow Soy Beans gave the second highest average yield (8.0 tons of green crop per acre), behind Egyptian Peas (8.6 tons)–ahead of Grass peas and Crimson Clover. Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

74. Zavitz, C.A. 1901. Report of the co-operative experiments in agriculture. *Ontario Agricultural and*

*Experimental Union, Annual Report* 22:12-23. For the year 1900. See p. 13, 16, 17-18.
• ***Summary:*** "Although the Ontario Agricultural and Experimental Union was started in 1880 there appears to have been no definite system of experimental work until 1884, when Dr. Hare arranged a plan of action and nine or ten ex-students volunteered to assist in conducting experiments. By the end of 1885 not many results of the co-operative experiments had yet been obtained, as only three complete reports of one year's work had been received..." (p. 12).

A table titled "List of experiments for 1900" (p. 13), under "Grain crops" includes "Testing three varieties of Soy or Japanese beans–3 plots."

In the section on "Grain crops" a table (p. 16) shows that nine tests were conducted on "Soja, or Japanese beans." Medium Green (estimated value 89), yielded 1.9 tons/acre of straw and 26.9 bu/acre of grain. American Coffee Berry (E.V. 100), 1.1 tons/acre of straw and 23.3 bu/acre of grain. Extra Early Dwarf (E.V. 63), 0.7 tons/acre of straw and 15.0 bu/acre of grain.

The subsection titled "Soy, soja, or Japanese beans" (p. 17-18) includes a summary and notes that the yields for each variety are slightly higher than in the previous year. Address: B.S.A., Agricultural College, Guelph, Ontario [Canada].

75. MacKay, Angus. 1902. Experimental Farm for the North-West Territories. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 457-512. For the year 1901. Se p. 475.
• ***Summary:*** The section titled "Experiment with Soja beans" (p. 475) states: "Sown on May 22, on 1/20th acre plots of land manured and fall-ploughed. Cut September 14. No pods formed." The best yield from 3 plots (7 tons 1,550 pounds per acre, green) was from beans planted in rows 21 inches (rather than 28 or 25 inches) apart. Address: Superintendent, Experimental Farm, Indian Head, North-West Territories, Canada.

76. Saunders, Wm. 1902. Experimental work at the Central Experimental Farm, Ottawa, Ontario. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 7-86. For the year 1901. See p. 34.
• ***Summary:*** The section titled "Experiments with Soja beans" (p. 34) begins: "Three plots of one-fortieth acre each were sown in rows at different distances apart, viz.: 21, 28, and 35 inches to gain information as to the best distance for sowing to secure the heaviest crops. The soil was a light sandy loam which received a dressing of barn-yard manure during the winter of 1899 and 1900 of about 12 tons per acre. The previous crop was potatoes."

The soybeans sown in rows 28 inches apart gave the best yields: 16 tons 400 pounds per acre of green crop, including 16 bushels per acre of beans. The growth was strong and even, very leafy. Average height: 40-45 inches. The pods were well formed, the beans were full grown and beginning to harden at time of cutting. Address: LL.D., F.R.S.C., F.L.S, Director, Dominion Experimental Farms, Ottawa, ONT, Canada.

77. Sharpe, Thomas A. 1902. Experimental Farm for British Columbia. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 513-58. For the year 1901. See p. 532.
• ***Summary:*** Page 532 states that Soja beans were sown on April 30 in plots 8-10. Those sown in rows 28 inches (rather than 21 or 35 inches) apart gave the best yields: 2 tons 920 pounds per acre when cut green. Length of stalks: 24-26 inches. Not so many pods formed. Address: Superintendent, Experimental Farm, Agassiz, BC, Canada.

78. Zavitz, C.A. 1902. Report of experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 27:82-111. For the year 1901. See p. 92-93.
• ***Summary:*** The section titled "Soy, soja or Japanese beans" (p. 92-93) states: "About twenty years ago, Prof. Georgeson, then connected with the Agricultural College in the State of Kansas, imported from Japan fifteen varieties of the Soy beans, with which he conducted practical experiments on the Experimental Station grounds and found that five of the varieties gave good results. These five varieties were imported from Kansas some ten years ago for growing in our experimental plots.

"The Early Yellow Soy Bean has given decidedly the best results among the five varieties which we obtained from Kansas. [Note: It seems that Zavitz has renamed the Yellow Soy Bean to Early Yellow Soy Bean within the past year. The names of the other four varieties are not given here]. The record of this variety has been satisfactory throughout, and the yield of grain per acre in 1901 was 25.3 bushels. When we realize that this grain when ground furnished a meal about equal in composition to cotton seed meal, we cannot help but acknowledge that this variety furnishes a large amount of valuable food constituents. It has given good results in the co-operative experiments throughout Ontario, as well as in the trials at the College." Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

79. Zavitz, C.A. 1902. Co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 23:9-24. For the year 1901. See p. 10, 12, 14-15, 21-22.
• ***Summary:*** A table titled "List of experiments for 1901" (p. 10), under "Grain crops" includes "Testing cow peas and two varieties of Soja or Japanese beans–3 plots."

In the section on "Reports of the experiments" a table titled "Grain crops" (p. 12) shows that 13 tests were conducted on "Soy beans." Early Yellow (estimated value 100), yielded 1.5 tons/acre of straw and 21.4 bu/acre of grain. Medium Green (E.V. 86), 2.2 tons/acre of straw and 18.1 bu/acre of grain.

The subsection titled "Soy, soja, or Japanese beans" (p. 14-15) includes a summary and notes: The Early Yellow variety usually ripens well, and is one of the very best varieties of the Soy beans for the production of grain. For the production of green fodder or for silage, however, the Medium Green is likely to give better satisfaction, owing to its more luxuriant growth and greater development of leaf. In those parts of Ontario where the pea weevil is becoming so abundant as to practically ruin the pea crop, the Soy bean might be grown to great advantage."

In the question and answer session (p. 21-22): "Q: At what time do you plant the Soy beans? C.A. Zavitz: We usually plant the Soy beans about the 5th of May.

"Q: How are the Soy beans usually planted? Zavitz: The seed should be sown in rows and the crop cultivated. The soy bean is being used considerably in some of the Eastern States by dairymen who wish to secure very rich food for their animals. It is also beginning to be grown quite extensively in some of the Western States, particularly Kansas. The crop will serve admirably as a substitute for peas in those sections where the pea weevil is doing so much damage." Address: B.S.A., Director of Experiments, Agricultural College, Guelph [Ontario, Canada], and Secretary of the Union.

80. Department of Agriculture, Commissioner's Branch. 1903. Growing forage crops: Feeders of live stock should prepare for the summer droughts. *Daily Sun (Saint John, New Brunswick, Canada).* June 12. p. 3.

• ***Summary:*** "Nearly every summer we hear the same old story of midsummer droughts and consequently scanty pastures. Many of our best farmers have learned to guard against loss by having a supply of succulent feed to fall back upon. A small silo, filled especially for summer use, will go a long way to meet the difficulty, and a partial system of soiling has also found favor among progressive stockmen."

"Soja or soy beans are also likely to prove valuable in the southern districts. They produce a large amount of forage of excellent character if sown on land prepared as for corn at the rate of two to four pecks per acre. The Yellow Soy is the best variety for Canada and is worthy of trial." Address: Ottawa [Ontario, Canada].

81. *J. of Agriculture and Horticulture (Quebec).*1903. Forage crops to supplement summer pasture and winter hay. Aug. 15. p. 79.

• ***Summary:*** This is a reprint of the following English-language document: Woods, Charles D. 1903. "Forage crops to supplement summer pasture and winter hay." *Maine Agric. Exp. Station, Newspaper Bulletin.* June. 1 p.

Note that Maine is on about the same latitude as southern Quebec. The Bulletin states: "Because of the long continued drouth the prospects are very unfavorable for the hay crop." Many farmers will "need to grow special forage crops to supplement the summer pasturage or the winter's hay. While Indian corn is the best forage plant for Maine, if a sufficient acreage has not been planted the season is so far advanced that other quicker growing plants can now be more advantageously used.

"The millets–Hungarian, German, Pearl and Japanese, Rape, and on light warm soils early soy beans–are the more desirable... Rape is valuable as a summer and fall feed for cattle, sheep, hogs and poultry. The soy bean is highly nitrogenous, but Maine is so far north as to make it a somewhat uncertain crop."

82. Fletcher, James. 1903. Report of the Entomologist and Botanist. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 169-201. For the year 1901. See p. 177, 185.

• ***Summary:*** In the section titled "The pea weevil or 'pea bug' *(Bruchus pisorum,* Linn.) (p. 175), a table (p. 177) shows those companies and individuals "who have taken an active part in the discussion of the best means of remedying the existing injury to the pea crop by the weevil." One of these is "Bruce, J.A., & Co., Hamilton, Ontario."

The subsection titled "Substitute crops" (p. 185) states that "Messrs. John A. Bruce & Co. of Hamilton, Ontario" have handled leguminous crops... Early varieties of Soja Bean have also given good results,..." Address: LL.D., F.R.S.C., F.L.S., Entomologist and Botanist, Central Experimental Farm, Ottawa, Ontario.

83. Silver Manufacturing Co. 1903. Modern silage methods: An entirely new and practical work on silos... [1st ed.]. Salem, Ohio: The Silver Manufacturing Co. 212 p. Illust. Index. 19 cm.

• ***Summary:*** The Introduction (p. 9) begins: "Twenty years ago few farmers knew what a silo was, and fewer still had ever seen a silo or fed silage to their stock. Today silos are as common as barn buildings in many farming districts of this country, and thousands of farmers would want to quit farming if they could not have silage to feed to their stock during the larger portion of the year. Twenty years ago it would have been necessary to begin a book describing the siloing system with definitions, what is meant by silos and silage: now all farmers who read agricultural papers or attend agricultural or dairy conventions are at least familiar with these words..."

The section on "History of the silo" (p. 9-10) states: "In 1882 the United States Department of Agriculture could find only ninety-one farmers in this country who used silos. During the last twenty-five years, however, silos have gradually become general in all sections of the country where dairying and stock-raising are important industries; it is likely, if a census were taken of the number of silos in this country today, that we would find between a third and a half million of them [333,000 to 500,000].

Chapter 3, titled "Silage crops," notes that Indian corn is America's major silage crop, followed by clover, alfalfa (lucerne–"the great coarse forage plant of the West"), cow peas (they "are to the South what alfalfa is to the West..."), Robertson Ensilage Mixture (in Canada, corn, sunflower seed heads, and horse beans), soja beans (soy beans), sorghum, and miscellaneous silage crops.

Concerning soja beans (p. 116-17): "According to the U.S. Department of Agriculture the soy bean is highly nutritive, gives a heavy yield, and is easily cultivated. The vigorous late varieties are well adapted for silage. The crop is frequently siloed with corn (2 parts of the latter to 1 of the former), and like other legumes it improves the silage by tending to counteract the acid reactions of the corn silage. Of other Southern crops that are used for silage crops may be mentioned Kaffir corn, chicken corn and teosinte."

Chapter 6, "A feeder's guide," gives additional statistics, definitions, and other practical information. A table titled "Classification of cattle foods" (p. 168), shows that among the coarse feeds of medium protein content are pea and bean fodder. High in protein content (25-40 per ct.) are Soja bean, gluten meal, and Grano-gluten. And gluten feed contains 12-25 per ct. protein. A table showing "Average composition of silage crops of different kinds, in per cent" (p. 178) gives water, ash, crude protein, crude fiber, nitrogen free extract, and ether extract for 19 crops or mixtures including: Soja bean silage, corn-soja bean silage, millet-soja bean silage, and cow-pea and soja bean mixed. A third table titled "Analyses of feeding stuffs" gives the dry matter in 100 lb and the three digestible nutrients in 100 lb for: Green fodders–Soja bean. Silage–Soja bean. Grain and by-products–Atlas gluten meal, gluten meal, and gluten feed. Additional information on soja beans from earlier publications is given on p. 183, and on Chicago gluten meal, Cream gluten meal, Buffalo gluten feed, and Atlas gluten meal on p. 189. Interesting terms in the Glossary (p. 192-95) include: Albuminoids, ether extract, legumes ("Plants bearing seeds in pods and capable of fixing the gaseous nitrogen of the air, so that it becomes of value to the farmer... Examples: The different kinds of clover, peas, beans, vetches, etc."), nitrogen-free extract, nutritive ratio, organic matter, and soiling. At the back are many illustrated advertisements of mechanical silage cutters and conveyors made by Silver Mfg. Co., plus an aerial view of its new factory in Ohio. Address: Salem, Ohio.

84. Zavitz, C.A. 1903. The experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 28:105-38. For the year 1902. See p. 124-25.
• ***Summary:*** The section titled "Soy beans" (p. 124-25) states: "The Soy bean *(Glycine hispida)* also known under the names of Soja Bean, Coffee Bean, Idaho Pea, etc., has been cultivated in Japan and China for a great length of time. The Soy bean is an annual legume, and the plants have an upright growth, and are almost completely covered with short hairs. The seed is generally sown at the rate of about one-half bushel per acre, and in drills from two to three feet apart, which are cultivated in a manner similar to that of our Canadian beans. The crop is used for green fodder, or is allowed to ripen for the production of grain, which is exceedingly rich, and, when ground into meal, is considered about as valuable as cotton seed meal for stock feeding.

"About twenty years ago, the Kansas Experiment Station imported from Japan fifteen varieties of Soy beans, carefully tested them at the Experiment Station grounds, and found that five of the varieties gave good results. About ten years ago, seed of these five varieties was grown in our own experimental plots.

"Eight varieties of Soy beans have been imported and grown in our Experimental Department. Some of the varieties proved to be entirely unsuited for Ontario, owing to the long season required to reach maturity. The Early Yellow variety, however, has given good results as a grain producer, the Medium Green variety for the production of green fodder. In the average results from growing the Early Yellow Soy beans for a period of seven years, 17 bushels of seed per acre have been obtained. In the production of green fodder, the Early Yellow variety produced an average of 8 and the Medium Green variety an average of 9.3 tons per acre for the same length of time.

"The Early Yellow Soy beans were distributed over Ontario last year for co-operative experiments, and the average yield of grain produced on thirteen Ontario farms was 21.4 bushels.

"We believe it would be a decided advantage to Ontario farmers to grow Early Yellow Soy beans more generally for the production of grain for feeding purposes, and the Medium Green Soy beans for putting into the silo with corn."

The section titled "Some leguminous crops for green fodder" (p. 135) contains a table showing 16 varieties of leguminous crops that have been tested for at least two years in succession; four of these are soy beans. The ranking, length (height) of the plants and the yield in tons of green crop per acre (average for 2 years) are as follows: 2. Medium Green Soy Beans: 33 inches, 11.68 tons. 6. Early Yellow Soy Beans: 25 inches, 8.15 tons. 12. American Coffee Berry: 22 inches, 6.68 tons. 16. Extra Early Dwarf Soy Beans: 20 inches, 2.53 tons. Note: Hairy Vetches gave

the highest yield, 13.90 tons. "The Medium Green Soy Beans, which stand second on the list, are an exceptionally fine variety, and we believe will be a valuable crop to grow for fodder, either for feeding in the autumn or for mixing with corn for the silo in order to increase the quality of the silage."

In the introduction (p. 105) outlines his work in connection with Field Agriculture, or Agronomy" under six heads. These include: "2. Carrying on scientific work, especially in the hybridization of farm plants, along the lines of the discoveries of Mendel and the investigations of De Vries, Correns, Bateson, and others. 3. Directing the co-operative experiments on 3,135 farms throughout the Province" (See *Annual Report of the Ontario Agricultural and Experimental Union,* bound at the end of this volume). "4. Delivering lectures to College students and agricultural conventions–about 100 in number." He lists how many lectures were delivered to which kinds of groups.

The section titled "Acknowledgments" (p. 138) mentions "Mr. L.S. Klinck, a senior student, in assisting with the farmers' excursions which came to the College in the month of June." Note: Leonard S. Klinck later became an important soybean breeder and university president. Address: B.S.A., Director of Field Experiments, Ontario Agricultural College [Guelph, Ontario, Canada].

85. Zavitz, C.A. 1903. Co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 24:10-24. For the year 1902. See p. 11, 13, 15-16, 22-23.

• ***Summary:*** A table titled "List of experiments for 1902" (p. 11), under "Grain crops" includes "Testing cow peas and two varieties of Soy, Soja, or Japanese beans–3 plots."

In the section on "Reports of Co-operative experiments" a table titled "Grain crops" (p. 13) shows that 2 tests were conducted on "Soy beans." Medium Green (estimated value 80), yielded 1.4 tons/acre of straw and 1,210 lb/acre of grain. Early Yellow (E.V. 100), 1.7 tons/acre of straw and 860 lb/acre of grain.

The subsection titled "Soy, soja, or Japanese beans" (p. 15-16) includes a summary and notes: As a rule the Early Yellow variety seems to be best suited for most parts of Ontario for the production of grain, and the Medium Green for the production of green fodder, either to be fed by itself or to be placed in the silo along with the corn to improve the nutritive value of the silage."

In the question and answer session (p. 22-23): "Q: Do you sow the Soy beans in rows? A: Yes.

"Q: How far apart? A: Twenty-five to twenty-eight inches." Address: Director of Experiments, Agricultural College, Guelph [Ontario, Canada].

86. *Daily Sun (Saint John, New Brunswick, Canada).*1904. Fighting Jap a worthy foe: Army built on French and German models. Cavalry a weak point–Rapidity and efficiency of the column already proven–Perfection in administration details. Jan. 27. p. 7.

• ***Summary:*** The section titled "Artillery officers" states: "A good soldier is twice as valuable if he has good care, and this, among other things military, the Japanese have learned. Everything which goes to make for the efficiency of the troops is scrupulously attended to. The rations are of the simplest–rice, dried fish, soy, and sometimes meat–but they are always ample and always the best of their kind."

87. Henderson (Peter) & Co. 1904. American farmers' manual (Mail-order catalog). New York, NY. 45 p. March. 28 cm.

• ***Summary:*** In the section titled "Farm seeds," page 34 is devoted entirely to soja beans–by far the largest coverage yet in a Henderson catalog. In the top half of the page, a photo shows a man, wearing a suit and hat, standing in a tall "Field of Early Soja Beans at Central Experimental Farm. Ottawa, Canada." In the lower right corner of this photo is an illustration (which first appeared in the 1899 issue of this manual) of a soja bean plant with a cluster of pods in the upper left corner. On a banner is written "Henderson's Early Soja Bean."

The bottom half of the page, titled "Early Green Soja or soy beans" sing's the plant's praises. "Soja beans have attracted much attention in recent years on account of their high feeding qualities, but all were too late to be of value in the Northern States. This early green variety has proved its earliness and value in the Northern States by not only producing large fodder crops, but ripening the seed as far north as Massachusetts. It is worthy of a place on every farm, either as a grain crop or fodder crop to feed green, or for the silo. The grain is the richest known vegetable substance, and when ground and fed to cattle gives a milk richer and better than cotton seed or other meal. For ensilage it forms a complete, balanced feed ration. While corn is the most serviceable crop for ensilage, though ever so well preserved as to succulence, odor and flavor, it is incomplete feed for cattle, being deficient in albuminoids or protein (the flesh formers), as well as fat. This deficiency has hitherto been supplied by feeding, in addition to the corn silage, such grain as oats, wheat, etc. or concentrated feeds, such as meal, oil cake, or some other commodity, rich in the elements in which corn silage is grown on his own farm, at small cost, a combination which fournishes a wholesome, economical and completely balanced feed for milch cows. This combination should be composed of two parts millet or corn to one part Soja Beans, grown separately, but mixed thoroughly, at the time of cutting and filling of the silo. This combination ensilage develops a most agreeable aromatic odor and is greedily relished by cattle

both dairy cows and fattening stock. It certainly will be generally used by all up-to-date farmers and dairymen and will revolutionize the dairy industry of the United States. We do not recommend the feeding of this combination to the entire exclusion of grains or other concentrated feed. We recommend that grain be fed occasionally as a change, but four-fifths of the grain bill can be saved. We recommend all farmers to plant this year at least an acre or two of our Early Green Soja Beans and an equal area of Japanese millet, to test and prove for themselves the value of the combination, and we are confident that, thereafter, all who try it will each year grow a larger acreage. Planted the latter part of May, in latitude of New York, the Beans are ready for harvesting in about 100 days. Japanese Millet comes quicker to maturity than Soja Beans, and on the authority of Prof. W.P. Brooks, of Hatch Experiment Station, Mass. [Massachusetts], should be sown from four to five weeks later, so as to be in the best condition for the silo, along with the Soja Beans. Sow the beans from the middle to end of May, and the Millet from the last week in June till the first week in July; both will then be ready for the silo about the end of August.

"Planted in rows 2½ feet apart, 6 to 8 plants to the foot of row, requiring three pecks per acre, they yield 15 or 20 tons per acre of fodder very rich in flesh formers. For green feed, use from time of blossoming till pods are well filled; for the silo, cut as soon as most of the pods are well filled, and cut into ½-inch to 2½-inch lengths. They are soil enrichers, gathering nitrogen from the air same as clover, the roots being crowded with tubercles, which give them this power. *(See cut.)* 10 c. lb., $1.10 peck, $3.86 bushel of 60 lbs.; 10-bushel lots, $3.75 bushel.

"Late Soja Beans.–A month later than the early variety; should not be used north of Virginia. $1.00 peck, $3.00 bushel."

A sidebar to the right of the text proclaims in large letters: "Valuable for either fodder or grain. Produces enormous crops as far north as Canada, ripening seed as far north as Massachusetts. Especially valuable (in combination with Japanese Millet and fodder corn) for ensilage, supplying the albuminoids or flesh-forming food. A great soil enricher, gathering nitrogen from the air."

Note: This catalog contains both black-and-white photographs as well as some black-and-white text engravings.

This catalog is owned by Special Collections, USDA National Agricultural Library, Beltsville, Maryland. Address: 35 & 37 Cortlandt St., New York.

88. *Toronto Daily Star (Canada).*1904. Madge Merton's page for women. July 16. p. 16.
• ***Summary:*** "Aunt. B.: The following recipe for homemade Worcestershire sauce sounds well. Pound once ounce of garlic, two ounces of small onions, and half an ounce of cayenne pepper. Put them in an earthen jug with half a pint of vinegar, stand in water, and simmer for three hours. Strain, add a pint of hot vinegar, and half a pint of Indian soy. Perhaps you can't get Indian soy, but at the shops where Chinese food is sold, you may get the Chinese article of the same name. Bottle your sauce and seal tightly, using a mixture of equal parts beeswax and resin."

89. Douglas (J.M.) & Co. 1904. Just a dash of the genuine: Lea & Perrins' Worcestershire Sauce (Ad)... *Toronto Daily Star (Canada).* Nov. 8. p. 9.
• ***Summary:*** "... is as necessary as salt to bring put the true flavor of Consomme, Bouillon, Sauce, Meats, Game, Fowl, etc. Without an equal for 60 years [i.e., since about 1844]. Ask any good cook." Address: Montreal [Quebec, Canada].

90. Evans Seed Co., Inc. 1904. 1904 retail price list: Northern grown legume, forage plant, grain and grass seeds (Mail-order catalog). West Branch, Michigan. 24 p. 23 cm.
• ***Summary:*** A black-and-white photo on the cover shows a man, a woman, and a child (little girl) standing in a "Field of soys and pearl millet at West Branch, Michigan." Below that is written in large letters: "Our northern grown seeds are unequalled for hardiness, earliness, vigor, high germinating power and purity." Printed by Herald-Times Print., West Branch, Mich. At the top of the cover in small letters: "44º12' North Latitude."

Contents: Note to the American Farmer and Stockman. Our terms. Legume seed department. Soy beans. Cow peas. Field peas. Garden peas. Beans *(Phaseolus vulgaris).* Spanish field pea *(Lathyrus sativus).* The vetches *(Vicia villosa* and *V. sativa).* Velvet beans *(Mucuna utilis).* Lupines (Blue and Large White). Faba or Broad Beans *(Vicia faba).* Lentils *(Lens esculenta).* Pea nuts *(Arachis hypogœa).* The clovers. Northern Grown Grain and Forage Plant Department: Field corn, Russian emmer *(Triticum spelta).* Spring wheat. Oats. Barley *(Hordeum vulgare).* Japanese barnyard millet *(P. [Panicum] Crus Galli).* East India pearl millet *(Pennisetum spicatum).* Teosinte *(Reana luxurians).* New legumes for 1905 (the Japanese Muroran bean is a forage crop that is earlier than the earliest soy or cow pea). Grass seeds: Timothy *(Phleum pratense)* and Orchard grass *(Dactylis glomerata).* Meadow fescue *(Fescuta pratensis).* Awnless brome *(Bromus inermis).* Red top *(Argostis vulgaris).* Kentucky blue grass *(Poa pratensis).* Root seeds. Seed potatoes. Bacteriated soil ("sand containing the bacteria adapted to peas, soys, cow peas, vetches, lentils, broad beans, lupins, etc. Sold in new 16-oz. cotton bags at $1.50 per 100 pounds. Not less than 100 pounds will be sold). A paradise for pork (Also called "hog heaven," it is a "combination crop." "Some plant corn, soys and mangels or sugar beets in alternate rows"). Chemical analysis vs. cow analysis [of feeds] ("All authorities, chemists and cows included, agree that the soy bean is the most digestible of all concentrated foods. And palatability–convince yourself.

Plant an acre of soys and when they are ripening turn in your stock, your cows, horses, hogs, sheep, turkeys, ducks and chickens. They will tell you all about the palatability of the soy bean).” Standard of weights in Michigan: Beans, soy: 8-16 quarts of seed required per acre. Weight per bushel: 60 lb.

The note (p. 2) “To the American Farmer and Stockman” begins: “Greeting: It has always been our aim to be something more than seed sellers–or merchants.” It states in detail the company’s strong commitment to quality seeds. “Our terms are invariably net cash with order.” The first section (p. 3+), titled “Legume seed department” begins: “From ancient times down to the present certain plants have been used for the purpose of renovating and maintaining the fertility of soils... It was not until 1888 that a German scientist discovered by which process these plants enrich the soil. Briefly, legumes are plants having the power, by aid of certain bacteria, of converting atmospheric nitrogen into nitrates available for plant food, and of storing it up in root nodules, or tubercles. We do not yet know whether this process is a mechanical or chemical one.”

However, we do know that nitrogen, one of the vital elements of plant food, is the most elusive, the most expensive to buy and the most difficult to retain of all the elements that go into the production of any crop. We know that a crop of soys, peas, clover, or vetches enriches the soil by adding to the available nitrogen. It is absolutely true that the nitrogen removed from an acre of land by a crop of oats, corn, wheat or timothy often exceeds in value the entire cost of producing a crop of legumes. There can be no greater folly in farming than the continued production of cereals without a rotation in which legumes form a part, and the shorter the rotation the better for the land and the bank account... The *Leguminosæ* includes beans, peas, vetches, clover, lentils, cow peas, soys, faba, lupins, etc.”

The subsection titled “Soy beans *(Glycine hispida)”* (p. 4-7) gives the most information about this crop to be found in any American seed catalog up to this time. “German, Soja. Japanese, daidzu [daizu]. Next to wheat this is probably the oldest of cultivated plants. It is mentioned in Chinese writings prior to 500 B.C., and remains to this day one of the staple crops of China and Japan. It was originally introduced into America about 1925-30, but failed to attract attention to its merits. It was not until the researches and experiments of Profs. Brooks [Massachusetts] and Georgeson [Kansas], within the past fifteen years, that the true value of soys became known. Since 1896 they have grown more rapidly in popularity than any crop ever introduced into America. Soys contain a higher percentage of protein in more digestible form, than any other farm product, and at a fraction of the cost of the so-called ‘concentrated feeds.’” A table shows a nutritional analysis of five varieties of soys made by the Michigan Experiment Station [published in Bulletin No. 199, April 1902]. Ito San and Medium Early Yellow contain the most crude protein (41.04% and 41.52%). A photo shows two uprooted soybean plants, each covered with pods.

Page 5 continues: “Soya are as easy of culture as common beans, cow peas, or corn. They succeed on any soil that will produce corn. They will withstand drouth and wet weather that would ruin most of our staple crops, and will pass uninjured through frost that kills corn to the ground. This has been demonstrated hundreds of times here in Michigan. Scores of seedsmen catalogue soys with southern seed, generally the Mammoth Yellow. Such seed can be bought for $1.00 to $1.25 a bushel, but is absolutely worthless north of the Ohio river. We are the pioneers of the soy seed business at the north; have grown and sold them for the past 8 years [since about 1896]. We have not a bushel of soys grown outside of Michigan.” “Evans’ soys are known the world over. We sold them last year in England, Germany, Guiana [incl. British Guiana?], West Indies, Hawaii, Mexico and Canada.

Page 6 continues: “Plant soys in drills 28 to 30 inches apart, using 8 to 16 quarts seed per acre, according to variety and use. For ensilage, they may be planted with corn, but we believe it is more satisfactory to grow the two crops separately and mix them as they go through the cutter.” The subsection titled “Varieties” gives details on each of the following: Ito San (named by Mr. Evans in honor of Marquis Ito, the Japanese statesman), Early Black or No. 6 (originated by Mr. Evans), Ogema, or Evans No. 9, Medium Early Green, Olive Medium (created and introduced by Evans), Medium Early Black.

Concerning: “Ogema, or Evans No. 9. Originated by Edw. E. Evans and offered for the first time last season. It is a cross of Dwarf Brown and No. 6 and is unquestionably the earliest of all soys. It can be planted later and farther north than any other variety. Beans dark chocolate color. Season 65 to 75 days. Stock limited.” Ogema is the company’s most expensive variety, selling for $7.50 per bushel, vs. $3.50 per bushel for most other varieties.

A table titled “Prices of soy beans” (p. 7) gives the prices of 12 varieties. The first seven are sold in quantities of one packet, quart, 4 quarts, peck, ½ bushel, and bushel. Most sell for $3.50/bu, but the price ranges from $3.00/bu for Ito San and Medium Early Yellow to $7.50/bu for Ogema. These seven are: Ito San, Ogema (earliest), Medium Early Green (general favorite), Olive Medium, Medium Early Black, Early Black (Evans No. 6), Medium Early Yellow. The last five varieties sold (all new) are: Dwarf Brown, Gosha, Rokugetsu [Rokugatsu?], Bakaziro [Bakajiro], and Hankow. Each is available only in the packet size at $0.15 per packet. On the last page of the catalog is a full-page order sheet.

Note 1. This is the earliest document seen (Aug. 2002) which mentions that turkeys eat or are fed soybeans.

Note 2. This is the earliest document seen (Sept. 2004) that mentions the following soybean varieties: Dwarf Brown, Hankow, Ogemaw, and Mammoth Yellow (one of three documents).

Note 3. This is the earliest English-language document seen (May 2003) that uses the word "bacteriated" to refer to soil containing nitrogen-fixing bacteria.

This catalog is owned by Special Collections, USDA National Agricultural Library, Beltsville, Maryland. Address: West Branch, Ogemaw Co., Michigan.

91. Zavitz, C.A. 1904. The experimentalist. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 29:113-151. For the year 1903. See p. 135, 147.

• ***Summary:*** The section titled "Varieties of soy, soja or Japanese beans" (p. 135) states: "The interest which is being taken in the Soy beans is created from the fact that some of these varieties can be grown successfully in Ontario, and that the crop is exceedingly rich in valuable constituents as a feed for farm stock. The whole plants are richer in flesh-forming constituents than Common Red Clover, and the grain is richer than any other grains which are grown in Ontario as feed for live stock. Many of the varieties of Soy beans require too long a season to give satisfactory results in Ontario. After experiments for a number of years, however, the Early Yellow variety has given good satisfaction as a grain producer, and the Medium Green variety as a fodder crop... We believe that the addition of the Medium Green variety to fodder corn when filling the silo would increase the quality of the latter greatly, would make a much better balanced ration than the corn alone, and would require less meal in order to secure satisfactory results."

The section titled "Green fodder crops" (p. 147) states: "For three years in succession [1901 to 1903], fifteen varieties of fodder crops have been grown in competition in the experimental grounds. Some of these have been grown for a very much longer period..." A table shows that during these 3 years, Medium Green Soy Beans gave an average yield of 11.50 tons of green fodder per acre, second only to hairy vetches (11.95) among 15 crops tested. Early Yellow soy beans gave 8.65 tons/acre, American Coffee Berry gave 6.55, and Extra Early Dwarf Soy Beans gave the lowest yield, only 2.16 tons/acre. "The Medium Green Soy Beans... are an exceptionally fine variety, and we believe will be grown more and more for the production of fodder either for feeding in the autumn or for mixing with corn when filling the silo, in order to increase the quality of the silage. If the Medium Green Soy beans are sown in rows about 30 inches apart with the beans about 8 inches apart in the row, about the time that the corn is planted, the crop would generally be ready for mixing with the corn and putting in the silo when the corn is in the best condition. The Early Yellow Soy beans are more specially adapted to the production of grain than of green fodder." Address: B.S.A., Director of Field Experiments, Ontario Agricultural College [Guelph, Ontario, Canada].

92. Zavitz, C.A. 1904. Co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 25:10-29. For the year 1903. See p. 12, 20, 22, 27.

• ***Summary:*** Zavitz is now "Director of the co-operative experiments in agriculture throughout Ontario"–a huge job. "As many of you know, the Ontario Agricultural College and Experimental Farm was established in 1874 by the Government of the Province of Ontario. Experimental work was commenced in the spring of 1876... Experiments and investigations are now conducted at the college along different lines of practical and scientific agriculture. In the experiments with farm crops, upwards of 2,000 plots are used annually..." "In 1879 the officers, ex-students, and students of the Ontario Agricultural College formed themselves into an association under the name of the 'Ontario Agricultural and Experimental Union.'" The objects of the association are given (p. 10-11).

A table titled "List of experiments for 1903" (p. 12-13), under "Grain crops" includes "Testing cow peas and two varieties of Soy, Soja, or Japanese beans–3 plots."

A table titled "Grain crops" (p. 20) shows that 3 tests were conducted on "Soy beans." Early Yellow (estimated value 100), yielded 1.28 tons/acre of straw and 906 lb/acre (15.11 bu/acre) of grain. Medium Green (E.V. 67), yielded 1.69 tons/acre of straw and 766 lb/acre (12.77 bu/acre) of grain.

The section titled "Soy beans" (p. 22) includes a summary and notes: "The yield in each case was unusually small, owing probably to the unfavorable weather conditions... The Early Yellow is considerably earlier in maturing than the Medium Green variety." This generally makes the former better for grain production and the latter better for fodder.

In the question and answer session (p. 27): "Mr. T.H. Mason: The later Mr. Tillson grew great quantities of Soy beans and put them in the silo, mixed with corn silage, and was well satisfied with the result."

"Q: It was difficult to get them dry enough to keep well last year, was it not?

"A: Mr. Zavitz: It was an exceptional year. We matured the crop here, however, and we find by taking the average of eight years' experiments, that the Early Yellow variety usually ripens well." Address: Director of Experiments, Agricultural College, Guelph [Ontario, Canada].

93. Moore, George T. 1905. Soil inoculation for legumes; with reports upon the successful use of artificial cultures by practical farmers. *USDA Bureau of Plant Industry, Bulletin*

No. 71. 72 p. Jan. 23. See p. 1-46, 67-68, 71-72 + 10 plates. [65 ref]

• ***Summary:*** From the earliest days of agriculture it has been recognized that all plants belonging to the Leguminosae had a decidedly beneficial effect upon the soil. Pliny (A.D. 23-79), the Roman scholar, wrote: "The bean ranks first among the legumes. It fertilizes the ground in which it has been sown as well as any manure" (p. 12). From the early 1800s on there was a great diversity of opinion concerning both the cause and the effect of root nodules of legumes.

Nobbe in Germany isolated a pure culture of nodule forming bacteria from the nodules and grew them in tubes or bottles containing nutrient agar. This culture was given the trade name Nitragin. Seventeen different kinds of Nitragin were prepared from the nodules of as many different plants, and marketed by a well known German firm of manufacturing chemists. Experiments with Nitragin in Germany met with varying degrees of success. In this country the results obtained by Prof. J.F. Duggar using hairy vetch at the Alabama Experiment Station in 1896 and 1897 were very satisfactory, but certain other investigators were not able to secure inoculation.

W.M. Munson at the Maine Agricultural Experiment Station reported in 1897 and 1898 of having fair success in inoculating soybeans with Nitragin, but he failed to get satisfactory results with other legumes. His results did not warrant the recommendation of the use of Nitragin for a leguminous crop. A major problem with Nitragin was that it lost its viability quickly (p. 21). "The percentage of failures in its usage was so great that its manufacture was given up, and it is no longer for sale under that name... For this reason the Laboratory of Plant Physiology of the [U.S.] Department of Agriculture undertook a scientific investigation of the root-nodule organism, and as a result it is believed that a thoroughly practical and satisfactory method of bringing about artificial inoculation has been devised" (p. 22).

Table 1, titled "Number of packages of inoculating material (or inoculated seed) distributed from November, 1902, to November, 1904..." (p. 42-43), lists the following under "Bean, Soy": Alabama 10, Alaska 0, Arizona 0, Arkansas 2, California 3, Colorado 0, Connecticut 4, Delaware 0, District of Columbia 0, Florida 1, Georgia 4, Hawaii 2, Idaho 1, Illinois 36, Indiana 16, Indian Territory 0, Iowa 9, Kansas 10, Kentucky 9, Louisiana 0, Maine 1, Maryland 7, Massachusetts 11, Michigan 10, Minnesota 1, Mississippi 1, Missouri 13, Montana 0, Nebraska 3, Nevada 0, New Hampshire 2, New Jersey 2, New Mexico 0, New York 30, North Carolina 11, North Dakota 0, Ohio 25, Oklahoma 4, Oregon 3, Pennsylvania 17, Philippine Islands 0, Porto Rico 1, Rhode Island 3, South Carolina 1, South Dakota 2, Tennessee 5, Texas 2, Utah 0, Vermont 2, Virginia 48, Washington (state) 3, West Virginia 6, Wisconsin 11, Wyoming 0. Foreign countries: Australia 2, British Guiana 0, Canada 1, Costa Rica 1, Cuba 2,... South Africa 2. Total: 391.

The next section, titled "Reports" (p. 44), begins: "While it has been impossible to receive reports from all experimenters, the percentage of replies has been unusually large and is quite sufficient to enable the formation of a fair opinion as to the value of the cultures distributed. Table II, "Reports of experiments with principal crops" (p. 45), shows the following for soy bean: Total reports: 129. Inoculation resulting in definite increase of crop: 54. Failures definitely ascribed to bad season, poor seed, weed growth, etc.: 22. No increase in crop; organisms already present in the soil: 11. No evident advantage from inoculation; nodules not formed: 42. Percentage of failure: 43%.

After discussing the nature of the organism, the author lists farmers in the following areas who have used the "artificial culture" successfully to inoculate soybeans: Rash, Alabama; Gainesville, Georgia; Napoopoo, Hawaii (Gordon Glore–Inoculation successful. Increased growth of plant and abundance of root nodules); Winchester, Kentucky; Bynum, Maryland; Marionville, Missouri; Dome, North Carolina; Guys Mills, Pennsylvania; Spring City, Tennessee; and seven towns in Virginia (p. 67).

The author states that alkaline nitrates in the proportion of 1 to 10,000 are sufficient to prevent the formation of nodules. Photos show: (I) Package of inoculating material for sufficient for four acres of alfalfa, with a letter titled "Directions for using inoculating material," from the U.S. Department of Agriculture, Bureau of Plant Industry. (II) Effect of rich nitrogenous soil upon formation of nodules of soy beans; few nodules. Same culture and seed used as in Plates III and IV. (III) Effect of poor sandy soil upon formation of nodules of soy beans; more nodules. (IV) Effect of poor clay soil upon formation of nodules of soy beans; many nodules. Conclusion: Soybeans grown in a poor sandy soil or in a poor clay soil have a greater number of nodules than plants grown in a rich nitrogenous soil. He states also that fully as striking differences might be shown in a soil in which the moisture or the acidity or the air supply varies, and that the application of calcium or magnesium will act differently on nodule production depending on whether the plant grows under acid or alkaline conditions.

Note 1. This is the earliest document seen (June 2007) that clearly refers to the cultivation of soybeans in Hawaii. They may have been grown there in 1900, at which time one variety was introduced to the USA from Hawaii.

Note: 2. This is the earliest document seen (June 2007) concerning soybeans in connection with West Virginia. Since 6 packages of soybean inoculating material (or inoculated seed) were sent to West Virginia from November, 1902, to November, 1904, its seems likely that soybeans

were in West Virginia and being cultivated there by 1905–but we cannot be sure.

Note: 3. This is the earliest document seen (June 2007) concerning soybeans in connection with Oregon. Since 3 packages of soybean inoculating material (or inoculated seed) were sent to Oregon from November, 1902, to November, 1904, its seems likely that soybeans were in Oregon and being cultivated there by 1905–but we cannot be sure.

Note: 4. This is the earliest document seen (Dec. 2008) concerning soybeans in connection with Cuba. Since 2 packages of soybean inoculating material (or inoculated seed) were sent to Cuba from November, 1902, to November, 1904, its seems likely that soybeans were in Cuba and being cultivated there by 1905–but we cannot be sure.

Note: 5. This is the earliest document seen (Feb. 2009) concerning soybeans in connection with Costa Rica, or with Central America. Since 1 package of soybean inoculating material (or inoculated seed) was sent to Costa Rica from November, 1902, to November, 1904, its seems likely that soybeans were in Costa Rica and being cultivated there by 1905–but we cannot be sure. Address: Physiologist in Charge of Lab. of Plant Physiology.

94. *Ottawa Free Trader (Ontario, Canada).*1905. Soil inoculation: A fad not all that it is painted. Some country papers booming it. Like other things warranted to cure all the farmers' ills it has decided limitations. Jan. 27. p. 16.
• ***Summary:*** "For instance, in 1903 I had one acre of soy beans with roots free from these nodules. The adjoining acre had applied to it a few bushels of soil from a field growing soy beans the year before with roots loaded with these nodules. The two acres were treated in every way alike except in the matter of this inoculation; yet when the harvest came and we had dug up the roots to go with the stems and leaves and pods, it was found that the acre inoculated gave up 152 pounds of nitrogen, while the uninoculated acre gave up but 67 pounds. It seems therefore that not only does the inoculated plant get its nitrogen from the air, but it takes into its body much more nitrogen than it is capable of taking with roots uninoculated.

"It remained for Dr. George T. Moore of the department of agriculture, Washington, D. C., to invent a method of sending out those little parts to farmers, so that if their fields lacked the proper inoculation, they could supply it. He will send one kind of germs for clover, another kind for alfalfa, still another for white beans, and another for each kind of other legumes. These germs are sent out in little packages looking like yeast cakes, which are dissolved in water."

95. Zavitz, C.A. 1905. The results of field crop experiments with farm crops–1904: Soy, soja, or Japanese beans. *Ontario Agricultural College and Experimental Farm (Guelph), Bulletin* No. 140. 63 p. Feb. See p. 26.
• ***Summary:*** The Early Yellow Variety has given good satisfaction as a grain producer, and the Medium Green variety as a fodder crop. "We believe that as the Medium Green variety becomes better known, it will be grown for the purpose of cutting green and mixing with corn when filling the soil. We also believe that the Early Yellow variety can be grown quite successfully for grain production on many farms of Ontario. A small quantity of the Soy beans, ground and mixed with other meal, will increase the quality of the meal considerably... We generally get about 1,200 pounds of grain per acre..."

Yields of grain per acre (pounds), average of the last 4 years, is: Medium Green Soy Beans 1,031, Ito San Soy Beans 932, Early Yellow Soy Beans 915, Grass Peas 634.

Note: This is the earliest English-language document seen (Sept. 2006) with the term "Japanese beans" in the title, used to refer to soybeans. Address: Prof. of Field Husbandry, Ontario Agricultural College.

96. Douglas (J.M.) & Co. 1905. Lea & Perrins': The genuine Worcestershire Sauce (Ad). *Toronto Daily Star (Canada).* June 24. p. 65.
• ***Summary:*** A large illustration shows a dignified man wearing glasses seated at a dining table with a steaming bowl of something in front of him. Behind him stands an attentive waiter.

"'James, haven't you forgotten something.'

"'Forgotten–me! Sir.'\ "'What about my cold roast beef?'

"'Beg pardon, Sir. Of course, Sir. Lea & Perrin' Sauce, Sir.

"'Ad it for you hevery day, these thirty years, Sir.

"Couldn't heat cold meats without Lea & Perrins' Sauce, could you, Sir?'" Address: Canadian agents, Montreal [Quebec, Canada].

97. Douglas (J.M.) & Co. 1905. Lea & Perrins': The genuine Worcestershire Sauce (Ad). *Toronto Daily Star (Canada).* July 15. p. 19.
• ***Summary:*** A large illustration shows a waiter carrying to steaming bowl of soup to the table.

"'Beg pardon, Sir.

"Alphonse says as 'ow the grocer didn't send 'im Lea & Perrins' Sauce, Sir.

"The bottle looked the same, Sir–hand 'e didn't notice the label. Sir.

"Sorry, Sir, that the soup hisn't seasoned just right, Sir.

"'Alphonese, Sir, says has 'ow hit wont 'appen hagain, Sir.'" Address: Canadian agents, Montreal [Quebec, Canada].

98. Eaton (T.) Co., Ltd. 1905. Eaton's July sale news (Ad). *Toronto Daily Star (Canada).* July 28. p. 12.
• ***Summary:*** The section titled "You're the doctor" states: "Pure, fresh, clean foods go a long way toward keeping you right, and that's the kind of food we offer every day."

"Lee and Langley's imported Worcestershire Sauce, special per bottle 10¢." Address: 190 Yonge St., Toronto.

99. Holbrook's Sauce. 1905. The soup recipe which won the Holbrook's prize (Ad). *Toronto Daily Star (Canada).* Dec. 23. p. 16.
• ***Summary:*** A large illustration shows a bottle of "Holbrook's Worcestershire Sauce" which savour's soup. "It helps make poor soups palatable and makes good soups better than they could be without it.

"Many recipe for soups using Holbrook's Sauce were submitted in competition for 18 prizes offered by the manufacturer. The awards were made after careful test by Miss Ida M. Hunter, the Superintendent of Domestic Science Department of the Public School of Toronto."

The first prize recipe, titled "Curl vegetable soup," is given. Address: 23 Scott St., Toronto.

100. MacKay, Angus. 1905. Experimental Farm for the North-West Territories. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 411-52. For the year 1904. See p. 430. Sessional Paper No. 16.
• ***Summary:*** The section titled "Experiments with Soja beans" (p. 430) states: "Sown May 17, in rows 21, 28, and 35 inches apart. These were killed by frost, and did not mature or even form pods." Address: Superintendent, Experimental Farm, Indian Head, North-West Territories, Canada.

101. Robertson, R. 1905. Experimental Farm for the Maritime Provinces. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 313-51. For the year 1904. See p. 334. Sessional Paper No. 16.
• ***Summary:*** The section titled "Experiments with soja and horse beans" (p. 334) states: "Experiments were again conducted with Soja beans and Horse beans to test their relative value as forage crops, and also the yield per acre when grown in rows at different distances apart. The plots were 1-10 [probably 1/10] acre each... The seed was sown June 13. Many of the plants of both these plots were destroyed by cutworms." A "frost on September 1 killed the Soja Beans, making it impossible to obtain reliable data from either of these plots." Also discusses alfalfa and six varieties of millet. Address: Superintendent, Experimental Farm, Nappan, Nova Scotia, Canada.

102. Sharpe, Thomas A. 1905. Experimental Farm for British Columbia. Report of Superintendent. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 453-85. For the year 1904. See p. 466. Sessional Paper No. 16.
• ***Summary:*** In the section titled "Horse beans" (p. 466) we read: "Soja Beans:–These make a better growth on our warm sandy soil than the horse bean and as they branch freely, and have a great deal of foliage, as well as many pods, the cattle, horses, pigs and sheep are very fond of them, and on rich land fairly heavy crops can be raised, but clover can be grown so much more cheaply and more feed per acre can be got from clover, that it does not pay except under exceptional conditions to raise Soja beans, especially as the seed seldom ripens sufficiently to be of use.

"Three plots were sown April 25 and harvested October 10, at which time a fair percentage of the pods contained seeds in a nearly matured state."

The beans sown at 28 inches apart in the drills gave the highest yield (4 tons 1,160 pounds). "Well podded; very leafy and well branched; pods more matured than where closer together in the drills." Address: Superintendent, Experimental Farm, Agassiz, BC, Canada.

103. Shutt, Frank T. 1905. Report of the chemist. *Annual Report of the Experimental Farms (Ottawa, Canada).* p. 143-203. For the year 1904. See p. 160-61. Sessional Paper No. 16.
• ***Summary:*** Tests were conducted to ascertain the relative degree to which certain crops reduced the soil's moisture by their growth, and further to gain information regarding the soil's moisture content when the same crop was sown broadcast or in drills. Soja Beans, in drills and cultivated, did not have a heavy growth. The loss of moisture was only 0.39 per cent, or 9 tons per acre. This was considered an insignificant loss. (p. 161).

A table titled "Conservation of soil moisture–C.E.F., Ottawa, Ont. 1904" (p. 160) shows detailed results of the trials for Soja beans in drills, water measurements being taken 8 times from July 4 to Oct. 10. Address: M.A., F.I.C., F.S.C., F.R.S.C., Chemist, Ottawa, ONT, Canada.

104. Zavitz, C.A. 1905. Co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 26:13-31. For the year 1904. See p. 16.
• ***Summary:*** A table titled "List of experiments for 1904" (p. 16), under "Grain crops" includes "Testing Cow Peas and two varieties of Soy, Soja, or Japanese beans–3 plots." No further information is given. Address: Prof., Agricultural College, Guelph [Ontario, Canada].

105. Harrison, F.C.; Barlow, B. 1906. Co-operative experiments with nodule-forming bacteria. *Ontario Department of Agriculture, Bulletin* No. 148. 19 p. March. [1 ref]

• ***Summary:*** Contents: Introduction. The importance of nitrogen to the farmer. The discovery of the nodule bacteria. Distribution of cultures in Canada. Methods of inoculating: By transfer of soil, by treating the soil, by treating the seed. Directions for the use of nitro-cultures supplied by the bacteriological department of Ontario Agricultural College (8 steps; they begin: "The culture is sent to you with the understanding that it is to be used for experimental purposes and that you will use it as directed and report to us your success or failure"). Announcement.

The bulletin begins: "The issue of a number of bulletins by the United States Department of Agriculture on 'Beneficial Bacteria for Leguminous Crops,' 'Inoculation of Soil with Nitrogen-Fixing Bacteria,' and the publication of articles on this subject in some of the popular magazines, has called the attention of the Canadian farming community to the maintenance of soil fertility by the growth of legumes which have been treated with beneficial bacteria, and has resulted in the many requests for information to the Bacteriological Department of the College with demands for samples of the necessary bacteria for the purpose of treating various crops such as clovers, peas, beans, etc.

A table (p. 4) shows how many samples of nitrogen-fixing bacteria ("nitro-cultures) were sent to 10 provinces of Canada. For example, Ontario was sent 76 samples, Nova Scotia 66 samples, and Quebec 10 samples. A 2nd table (p. 5) shows the total number of reports received for each of 9 different crops; the soybean had 1 report only [in response to culture samples sent, but we are not told in which province those soy beans were grown]. Some 38 samples of the 134 reports received are printed in this bulletin; of those, the four for "Beans" (the type of beans is not stated) are from Ontario (3) and New Brunswick (1).

A full-page photo (p. 13) shows two uprooted soy bean plants. The one on the right has many more leaves and larger roots than the one on the left. The caption states: The one on the left is from untreated seed, that on the right from seed treated with nitro-culture."

Another full-page photo (p. 15) shows the roots of four separate soy bean plants, upside down. The caption states that the two largest root systems with the most nodules are from seed treated with nitro-culture, whereas the other two are from untreated seed.

Page 16: "Inoculation is also desirable if a farmer wishes to grow a new kind of legume on land even though it has previously grown excellent crops of a different species of legume. This, although red clover may have been successfully grown, with a large number of nodules on the roots, the bacteria from those roots may not infect alfalfa or lucerne if it were planted in the clover soil, and hence, inoculation with bacteria taken from the alfalfa nodules, would be desirable. So also when introducing the culture of vetches, of field beans, and soy beans, it would be necessary to treat the seed with bacteria taken from these plants... It seems especially desirable in Ontario to inoculate the field bean and soy bean, as experiments have shown that Ontario soils are not so generally infected with bacteria for these plants as for the other legumes,...

The "Announcement" (p. 19) states: "For the spring of 1906 the Bacteriological Department is preparing to send out a *limited* number of cultures for the inoculation of the following legumes: Red Clover, Alsike Clover, Alfalfa or Lucerne, Field Peas, Vetches, Field Beans and Soy Beans. Those desiring cultures will please make application according to the following blank form.

"Application for nitro-culture." "This sheet when filled out should be addressed to the Bacteriological Department, Agricultural College, Guelph, Ontario,..."

Note: Unfortunately, there is no indication in this paper from where the soy bean seeds (or photos) were obtained or where they were they were grown. Address: 1. Bacteriological Laboratories, The Macdonald College, Ste Anne de Bellevue, Quebec; 2. Bacteriological Department, Ontario Agricultural College, Guelph. Both: Canada.

106. Harrison, F.C.; Barlow, B. 1906. XII–The nodule organism of the Leguminosae–Its isolation, cultivation. identification, and commercial application. *Transactions of the Royal Society of Canada. Section 4: Geological and Biological Sciences. Series 2.* 12(1906-1907):157-237.
• ***Summary:*** Harrison and Barlow read this paper at a meeting of the Royal Society of Canada on 23 May 1906. The soybean is mentioned several times: "Large nodules like those from the Soy bean may remain in the solution for half an hour" (p. 165).

"Growth in ash-maltose-water media–In January, 1905, a series of liquid media were inoculated with pure cultures isolated from nodules of red clover, alfalfa, vetch, and soy bean" (p. 168).

"Seed were thus obtained in the summer of 1905 and 1906 from pea, vetch, bean and soy bean. The seeds were examined for bacteria by plating some of them in ordinary gelatin or agar media and in ash-maltose-agar and by dropping some into tubes of sterile bouillon. The seeds so treated imbibed moisture and in some instances germinated" (p. 173).

A table lists the distribution of samples of nitrogen-fixing bacteria ("nitro-cultures") sent to 10 provinces of Canada: Quebec was sent 10 culture samples (p. 184). An untitled table shows the total number of reports received according to crop–the soybean had 1 report only [in response to culture samples sent] (p. 184, but we are not told in which province those soy beans were grown).

Note 1. Unfortunately, there is no indication in this paper from where the soy beans were obtained or where they were they were grown. Address: 1. Bacteriological Laboratories, The Macdonald College, Ste Anne de

Bellevue, Quebec; 2. Bacteriological Department, Ontario Agricultural College, Guelph. Both: Canada.

107. Eaton (T.) Co. 1906. Eaton's Friday bargain list (Ad). *Toronto Daily Star (Canada)*. May 31. p. 14.
• ***Summary:*** The section titled "Friday's pure food economy" includes: "Baird's Imported Worcestershire Sauce, 5 bottles, 25¢." Address: Toronto.

108. Henderson (Peter) & Co. 1906. Everything for the garden (Mail-order catalog). New York, NY. 186 p. 28 cm.
• ***Summary:*** In the section titled "Farm seeds (p. 64), in the center of the page, is an illustration of a soja bean plant with a cluster of pods in the upper left corner. On a banner is written "Henderson's Early Soja Bean."

To its left is expanded coverage of the soja bean and a new variety for this catalog: "Early Green Soja Bean. This variety produces enormous crops as far north as Canada, and will ripen its seeds even in Massachusetts. It grows about 4 ft. high and yields ten to twenty tons of green fodder per acre, or 20 to 40 bushels of Beans.

"It is a valuable leguminous plant for the farmer and dairyman for either green or cured fodder or grain. It is especially valuable for ensilage in combination with fodder corn or Japanese Millet, thus furnishing a complete balanced ration with an agreeable aromatic flavor, and is greedily relished by cattle. It increases the milk and butter and fattens the stock. The grain is also exceedingly nutritious, ranking, when ground, even higher than cotton seed or linseed meal for feeding cattle, hogs, or other stock. 3 lbs. of Soja Bean meal added to the grain ration of milch cows produces a rich milk.

"Soja Beans are great soil enrichers, adding humus and fixing nitrogen from the air. The seed may be planted as soon as the soil is warm–a little later than corn–in rows 30 inches apart, 6 to 8 seeds to the foot, requiring 3 pecks per acre. *(See cut).*

"Price, 10¢ lb., $1.25 pk. [peck], $4.00 bushel (of 60 lbs.); 10-bush. @ $3.90 per bush."

This catalog is owned by Special Collections, USDA National Agricultural Library, Beltsville, Maryland.

Note: This is the earliest English-language document seen (March 2003) that uses the term "fixing nitrogen" (or "fix nitrogen") or "fixing nitrogen from the air" in connection with soybeans. Address: 35 & 37 Cortlandt St., New York.

109. Zavitz, C.A. 1906. Co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 27:12-33. For the year 1905. See p. 15-16, 19, 29-30.
• ***Summary:*** A table titled "Co-operative experiments in agriculture in 1905" (p. 15), under "Grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots."

A table titled "Grain crops, 1905" (p. 16) shows that 2 tests were conducted on "Soy beans." Early Yellow (estimated value 100), yielded 1.85 tons/acre of straw and 1,100 lb/acre (18.33 bu/acre) of grain. Medium Green (E.V. 85), yielded 4.30 tons/acre of straw and 1,040 lb/acre (17.33 bu/acre) of grain.

The section titled "Soy beans" (p. 19) includes a summary and notes: "Meal made from Soy beans is not very different in composition from that of cotton seed meal. A small quantity of this meal added to that of oats and barley would add considerably to the nutritive properties of mixed feed." Note: This meal is probably ground whole soy beans. Address: Prof., Agricultural College, Guelph [Ontario, Canada].

110. Piper, C.V. 1907. Leguminous crops for green manuring: Soy beans. *USDA Farmers' Bulletin* No. 278. 27 p. April 3. See p. 19-21.
• ***Summary:*** Largely a favorable comparison with cow peas. "Soy beans are adapted to a much wider range of climate than cowpeas, being grown successfully even in Ontario [Canada] and Massachusetts. As a forage crop soy beans have some points of superiority over cowpeas, the hay being somewhat easier to cure and richer in protein. The seed is also cheaper than that of cowpeas, usually costing only two-thirds as much." Illustrations show (p. 19-20): (1) A soy bean plant with an inset of enlarged pods (non-original; from Carrière 1880). (2) Roots of soy bean plant with nodules (not original). Address: Agrostologist in Charge of Forage Crop Investigations, Bureau of Plant Industry, USDA, Washington, DC.

111. Harrington, -. 1908. Japan: Report for the year 1907 on the trade of the consular district of Yokohama. *Diplomatic and Consular Reports, Annual Series (Foreign Office, Great Britain)*. No. 4165. p. 1-47.
• ***Summary:*** Yokohama is Japan's leading port, accounting in 1907 for about 40% of all imports. Germany exported £13,000 in oil and bean cake to Japan (perhaps transshipped from China; p. 13). Japan's main imports from China via Yokohama included raw cotton £362,000, oil and bean cake £296,000, and soja beans £73,000 (p. 14). There was a small increase in the export of soy [sauce] to Canada (p. 16; no amounts are given).

A ten-page table (p. 22-32) titled "Imports into the Port of Yokohama during the Years 1905-07" shows the import of "oil cake" used as manure rose from 61,830 tons worth £281,870 in 1905 to 88,520 tons worth £461,460 in 1907 (p. 32).

A table (p. 34) titled "Exports from the Port of Yokohama during the Years 1905-07" shows the value of the export of "soy" [sauce] (mostly to the United States and

Hawaii) rose from £42,007 in 1905 to £59,900 in 1907; no quantities are given. Groundnuts, rice, seaweed, and Bêche-de-mer (sea slug, trepang) were also exported from Yokohama. Address: Acting British Vice Consul, Yokohama.

112. Zavitz, C.A. 1908. The professor of field husbandry and director of field experiments. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 33:165-226. For the year 1907. See p. 198-99, 219, 223.
• ***Summary:*** The section titled "Varieties of soy, soja or Japanese beans" (p. 198-99) begins: "Although a large number of varieties of this class of beans have been tested for some years on our trial grounds, most of them have proven to be quite unsuited for growing in Ontario, as they require a long season in which to mature. A few varieties, however, ripen quite early and produce grain which is very high in feeding value, being even richer in this respect than our common field peas. Among the varieties which mature their seed at the College, the Early Yellow is worthy of special mention. This variety has been grown at the College in each of 12 years and yields per acre have varied from 6.9 bushels in 1893 to 30.4 bushels in 1906. The average for the 12 years is 15.3 bushels of seed per acre.

"The Medium Green variety of soy beans is a strong vigorous grower and usually produces a good yield of seed when it has time to mature before the nipping frosts occur in the autumn. It is, however, rather later than the Early Yellow variety and is rather unsafe to sow for grain production in Ontario, except on warm soils in the southern part of the Province. Soy beans are usually sown in rows from twenty-five to thirty inches apart, and about one-half bushel of seed is used per acre."

The section titled "Leguminous crops for green fodder" (p. 219) states: "Eighteen varieties of leguminous crops were grown in the Experimental department in 1907 for the production of green fodder. They include vetches, soy beans, cow peas, lupines, etc... The greatest yields of green crop in 1907 were produced as follows: Medium Green soy beans, 6.9 tons [per acre]; Ito San soy beans, 5.6 tons; Grass peas, 5.4 tons... The following table gives the average height and average yield of green fodder per acre for each of the six varieties of leguminous crops grown for seven years in succession." Medium Green soy beans, 34 inches, 9.4 tons (highest average yield). Early Yellow soy beans, 26 inches, 7.2 tons (4th highest average yield).

The section titled "Annual pasture crops" (p. 222-23) states: "The amount of pasture crop produced by the various varieties when grown separately, was according to the following order, starting with the highest and finishing with the lowest yielders: Oats, Common Red Clover, Hairy Vetches, Sugar Cane, Dwarf Essex Rape, Crimson Clover, Rye, Barley, Hungarian Grass, Common Vetches, Corn, Spring Wheat and Soy Beans."

A photo (p. 226) shows a large group of farmers, dressed in hats, coats, and ties, walking beside the test plots. The caption reads: "A few of the 33,000 farmers who visited the College in the month of June, 1907."

Note: This document contains the 2nd earliest date seen (Feb. 2001) for soybeans in Ontario province, Canada, or the cultivation of soybeans Canada, or in Ontario province, Canada (1893). The source of these soybeans was Prof. Georgeson, at the Kansas Agricultural Experiment Station, in the United States (for information on the source, see Marketing and Development in Ontario Agriculture. 1983. Sept. p. 4-6). Address: Guelph, Ontario, Canada.

113. Zavitz, C.A. 1908. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 29:14-32. For the year 1907. See p. 15.
• ***Summary:*** A table titled "Co-operative experiments in agriculture in 1907" (p. 15), under "Grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots." No additional information on soy is given. Address: Prof., Agricultural College, Guelph [Ontario, Canada].

114. Douglas (J.M.) & Co. 1909. What the grocers say, about Lea & Perrins' Worcestershire Sauce (Ad). *Toronto Daily Star (Canada).* May 4. p. 12.
• ***Summary:*** "Fraser, Viger & Co., Limited, of Montreal, have the reputation throughout Canada of catering to the highest class of the trade. This well known house also believes in telling their patrons about their best goods.

"In an advertisement which appeared in 'The Montreal Daily Star' of February 13th, Fraser" etc. said: "Among the various sauces that flood the market, Lea & Perrins', the 'Genuine Worcestershire,' is still in the lead by a big margin Its flavor is unique and most appetizing, different from all others."

Illustrations show: (1) A grocer, wearing muttonchops [sideburns] and a white apron, holding a bottle of Worcestershire sauce. (2) A large upright bottle of Lea & Perrins' Worcestershire Sauce. Address: Agents for Canada, Established 1857, Montreal [Quebec, Canada].

115. *Milling (Liverpool).*1909. Soya beans. 33(9):288-89. Aug. 28.
• ***Summary:*** This article, which precedes by 2 pages a larger article on the subject, is published under seven equal-sized heads: Soya beans. A new trade. Empire production. Buyers of soya beans. Food purposes. Brown bread. Wheat gluten. "There is a probability of the import of Soya beans becoming a trade of great importance in this country. For some years a cake, made from the residue left by crushing them for the sake of the oil they contain, has been imported into this country. The first really commercial import of these beans was, we believe, made by a Liverpool firm last year.

Their great value, both for oil production and for other purposes, has been known for many years, but it was not until after the Russo-Japanese War that the development of the crops in Manchuria was commenced with a view to an export trade... Since the Spring of this year the import [of Soya beans to England] has been several hundred thousand tons."

Sir Alfred Jones is seeing if soybeans can be grown on the west coast of Africa. An influential commission appointed by the Canadian government visited England and other European countries to find out why Canada had lost a portion of her trade in bacon. It is thought that if farmers in Canada had soya bean meal they would be able to produce a much larger quantity of bacon.

"We mentioned in a recent issue of *Milling* how the beans were being finely desiccated and sold for admixture with wheaten flour. Since that time we have obtained baking samples of the flour which is far superior to that first seen. A loaf of bread was made from four parts of English patent [flour] and one part of Soya flour. The loaf produced was of a very pleasant flavour. It cut quite clean and there was an absence of crumbs... The colour of the loaf was a rich brown and the flavour was very good." The quality of brown bread could probably be greatly improved by the addition of soya flour.

"The albuminoids of wheat are of a very different order from those of most other cereals. They provide the baker with a substance which holds in the gas produced by the yeast and so cause the light loaf of bread in which bakers delight in producing... If we could make the albuminoids of other cereals as elastic and tough as those of wheat, light bread could be made from such as barley, maize, oats and Soya flours."

Note 1. This is the earliest English-language document seen (Dec. 2005) that uses the term "soya bean meal" to refer to ground, defatted soybeans.

Note 2. This is the earliest English-language document seen (Oct. 2001) that uses the term "soya flour" (one of two documents). Address: England.

116. *Manchester Guardian (England).*1909. The Manchurian soya bean: New industries projected. Sept. 10. p. 10.

• ***Summary:*** "Considerable interest has been awakened in commercial quarters by the statements recently published as to the immense possibilities of the Manchurian Soya bean and there is a probability that at Liverpool, if not also on the banks of the Ship Canal, an important new industry will spring up."

Note: The Manchester Ship Canal, opened in May 1894, transformed Manchester from a landlocked city into a major sea port, known as the Port of Manchester.

"The value of the bean has already been recognised in various parts of the world, but it was only in the recent opening of the Manchurian Railway for other than military purposes that revealed the immense trade possibilities connected with it."

"The uses of the bean are manifold. It is said to be excellent in bread; it yields a rich oil, is a capital food for cattle and pigs; and in Japan even milk has been derived from it, and from that milk cheese of various sorts has been made. It forms such a rich food for pigs that it requires to be mixed with plainer fare before being offered to them. Its advantages in this direction were quickly grasped by the enterprising Danish pig-breeders; they bought heavily on the Hamburg market, and the subsequent decline in the imports of Canadian hog products into this country has been attributed, in part at any rate, to the advantages gained by the Danish breeders as a result of the extensive use of the bean.

"The first cargo of the beans to reach this country came in the Myrtledene to Bristol and was consigned to a well-known Liverpool firm of cattle food manufacturers. The bean is now used also for soap-making at Port Sunlight. The Myrtledene's cargo arrived in February last, and since then 200,000 tons have been imported.

"Although firms at Hull and Newcastle-on-Tyne are also moving, a serious attempt is to be made to centre the imports of the bean at Liverpool, with the intention not merely of increasing the shipping trade of the port, but also with a view to establishing a new local industry. The exportable surplus of this year's crop will, it is said, probably exceed a million tons, so that the magnitude and value of the trade is readily appreciated. Several of the most prominent commercial men of Liverpool are interested in the scheme, amongst them Sir Alfred Jones, who contemplates attempting its cultivation in West Africa. He is also interested in the question of its shipment from Vladivostok, and particularly in the erection of special mills at Liverpool to deal with the bean. Efforts are now being made to promote a company to take the matter up, and in a few weeks it will be seen whether these efforts have been successful.

"In the meantime the British Vice Consul at Vladivostok reports that the condition of the coming crop is very favourable,..."

117. *Toronto Daily Star (Canada).*1909. Beef-eating in Japan: Is on the increase–abandoning rice which is cause of beri-beri, Sept. 10. p. 7.

• ***Summary:*** London, Sept. 11. "The Japanese peasant does not eat much rice; it is too dear. Barley, vegetables, and fish are his staple foods. The upper and middle classes, however, who have hitherto eaten large quantities of rice, are now slowly beginning to add meat to their dietary. Beef is the favourite dish. It is cut up small, boiled with a native bean sauce [soy sauce] and vegetables, and eaten with the hashi or chopsticks."

118. Piper, Charles V.; Nielsen, H.T. 1909. Soy beans. *USDA Farmers' Bulletin* No. 372. 26 p. Oct. 7. Revised in 1916. [10 ref]

• ***Summary:*** Contents: Introduction. Climatic and soil requirements of soy beans. Varieties of soy beans (12): Mammoth (yellow); Hollybrook (yellow); Ito San (yellow); Guelph (green); Buckshot (black); Ogemaw (brown); Wisconsin Black; Wilson (black); Meyer (mottled black and brown); Austin (greenish yellow); Haberlandt (yellow); Riceland (black). The culture and planting of soy beans. The inoculation of soy beans. Soy beans for hay: Curing the hay. Soy beans for pasturage. Soy beans in mixture: Soy beans and cowpeas, soy beans and sorgo, soy beans and millet, soy beans and corn. Soy beans for ensilage. Soy beans for grain. Soy beans in rotations. Feeding value of soy beans: Feeding value for sheep, feeding value for dairy cows, feeding value for hogs. Storing soy-bean seed. Comparison of soy-bean grain and cotton-seed meal. Comparison of soy beans and cowpeas. Summary.

The bulletin begins: "The soy bean, also called the 'soja bean' (fig. 1), is a native of southeastern Asia, and has been extensively cultivated in Japan, China, and India since ancient times. Upward of two hundred varieties are grown in these countries, practically every district of which has its own distinct varieties. The beans are there grown almost entirely for human food, being prepared for consumption in many different ways. Their flavor, however, does not commend them to Caucasian appetites and thus far they have found but small favor as human food in either Europe or America.

"As a forage crop, however, soy beans have become of increasing importance in parts of the United States, especially southward. They have been tested at most of the State agricultural experiment stations, and it is clear that their region of maximum importance will be south of the red clover area and in sections where alfalfa can not be grown successfully. They thus compete principally with cowpeas, but as cultivation is usually required they fill a somewhat different agricultural need. Their culture has greatly increased in recent years, especially in Tennessee, North Carolina, Virginia, Maryland, Kentucky, and the southern parts of Illinois and Indiana [though no statistics are given]. It seems certain that the crop will become one of great importance in the regions mentioned and probably over a much wider area. The earlier varieties mature even in Minnesota, Ontario [Canada], and Massachusetts."

"Soy beans are also decidedly drought resistant, much more so than cowpeas, and but for the depredations of rabbits would be a valuable crop for the semiarid West. Rabbits are exceedingly fond of the foliage, and where they are numerous it is nearly useless to plant soy beans unless the field can be inclosed with rabbit-proof fencing."

At the present time seven varieties of soy beans are handled by American seedsmen: Mammoth (yellow seeds), Hollybrook (yellow), Ito San (yellow), Guelph (also called Medium Green, Medium Early Green, Large Medium Green), Buckshot (black; a very early variety handled by northern seedsmen), Ogemaw (brown), and Wisconsin Black. A detailed description, with a photo showing the seeds and pods, is given of each. The best of the new varieties, most of which will be available in 1910, are: Wilson (black), Meyer (mottled black and brown), Austin (yellowish green), Haberlandt (yellow; the seed is considerably larger than that of any of the other yellow-seeded varieties), and Riceland (black).

"During the past three years more than two hundred additional varieties have been introduced from China, Japan, and India, most of which have already been sufficiently tested to give some idea of their value. Many of the new varieties are so superior in various respects that they are certain to replace all of the above-named varieties except Mammoth and, perhaps, Ito San."

A table (p. 23) gives a nutritional analysis of seven varieties of soy beans: Austin, Ito San, Kingston, Mammoth, Guelph, Medium Yellow, Samarow.

Illustrations (line drawings) show: (1) A typical soy-bean plant with leaves, pods, roots and nodules (p. 5, by Boetcher). (2) A bunching attachment on an ordinary mower for bean harvesting (p. 19). Photos show: (1) A plant of the Mammoth variety of soy bean (p. 6). (2) Seeds and pods of seven varieties of soy beans (full size; p. 8). (3) A man standing in a field of the Mammoth variety of soy bean in North Carolina (p. 9). (4) Roots of a Mammoth variety of soy bean with characteristic nodules (p. 13).

Note: This is the earliest document seen (March 2002) stating that the USDA has tested more than 200 varieties of soy beans. Address: 1. Agrostologist in Charge; 2. Scientific Asst. Both: Forage Crop Investigations, USDA Bureau of Plant Industry, Washington, DC.

119. Carson, John M. 1909. Soya bean and products. *Special Consular Report (U.S. Bureau of Manufactures, Department of Commerce and Labor)* No. 41. Part 5. 35 p. Erroneously numbered Special Consular Reports, Vol. XL.

• ***Summary:*** Contents: Introduction. I. Countries of production. China: Newchang (Varieties of beans and amount produced {in centals [hundredweights; 1 cental = 112 pounds]}, methods of cultivating and harvesting, prices and exports, shipments to Europe–use by natives), Dalny (Manufacture of bean cake and oil, preparing the cake, expressing the oil and wages paid, freight charges to Dalny, exports, stock on hand, and prices), Chefoo (Beans imported for cake manufacture, quantity and value of output, bean vermicelli made by a peculiar process [from the small green bean lü tou {mung bean}], preparation of beans, drying of product and prices [for vermicelli]),

Shanghai (Extent of export trade in beans), Shantung (manufacture of bean oil and cake, harvesting and pressing, shipping and prices), Swatow, Tientsin (Exports of raw beans, shipments of bean cake, extent of trade at Tientsin). Tables (p. 5) show prices and exports of soya beans, bean cake and bean oil at Newchang for the years 1905-1908. Japan: Cost of production and prices (of soya beans, quite detailed), imports of beans and cakes, use of the bean as food (shoyu, miso, tofu, koya-tofu, natto, flour), Kobe (Beans as human food {eaten boiled with a little soy [sauce], "made into bean curd, and a kind of sauce made of wheat, beans, and salt"}–small exports {"The total exports of beans, pease, and pulse [incl. soy] in 1908 were valued at $25,971, of which about $24,000 worth went to Hawaii, the United States, and Canada for use by the Japanese residents in those countries as an article of food"}, manufacture of cake), Nagasaki (Production of beans, imports of beans–market prices). Shipments from Vladivostok * [Russia, of soybeans probably grown in Manchuria] (Fluctuations in prices, shipments during present season, immense shipments planned next season (by Mitsui)).

"It is the intention of Mitsui Bussan Kaisha, the largest exporter from this port, to ship about 200,000 tons of beans via Vladivostok during 1909 and about double that quantity via Dalny. Many large contracts have been made for next season, and from present indications a strong effort will be made against the control of Mitsui Bussan Kaisha as the Chinese are making arrangements to deal direct with the European market without the aid of the Japanese" (p. 18).

Tables show: The quantities and value of soya beans, soya-bean cake, and bean oil imported into Japan during the year 1908 (p. 15). The soya bean harvests (in bushels) reported in various Japanese districts (p. 16).

II. Markets. Denmark: Experimental imports made, views of an importer. France: High duties prevent importation of soya beans, soya-bean flour bread used by diabetics, unknown in Calais district. Germany: Danger of feeding cattle on soya-bean products, oil value–prices at Hamburg, comparative food value of the bean. Italy: Beans imported and cultivated in limited quantities, prices of soya products–American cotton-seed oil, not imported into Catania, home products supply Piedmont district. Netherlands: A great future for the soya-bean trade predicted, prices of the bean and bean cake, soya cake as cattle feed, manufacture of soya-bean products begun, English soya-bean cake defective. Norway: Imports of soya-bean meal and cotton-seed meal. Russia: Beans and products unsatisfactory as feeding stuffs. Spain: Soya bean unknown in Valencia district [They are neither cultivated nor imported in this district]. Straits Settlements [Singapore and Malaya]. Sweden: Soya-bean products introduced through England. Comparative value of cattle feed [work by Nils Hansson of Sweden], comparative prices of feed stuffs. Turkey. England: Liverpool (Conversion of the soya bean into cake and meal), Plymouth (Soya cake and meal extensively consumed), Southampton (The bean appreciated as a fattener and as a dairy ration, the soya bean as human food [for use in diabetic diets]). Ireland: Chinese bean products are favorably received, soya bean introduced in Belfast, small imports at Cork. Scotland: Statistics as to use in Dunfermline not available, test of feeding value of soya cake [by Prof. Douglas A. Gilchrist], Edinburgh mills making experiments (based on 1909 report 1909 of U.S. Consul Rufus Fleming from Edinburgh).

III. Competitive American exports. Tables (p. 35) show exports for 1907, 1908, and 1909 of cotton-seed meal, cotton-seed oil, and cottolene, lardine [not defined: presumably shortening made from cottonseed oil], etc. to major countries, especially in Europe.

The Introduction notes: "In compliance with requests from manufacturers of cotton-seed products in the United States, who desired that an investigation be made of the production and use of the soya bean and its manufacturers in the Far East and of the extent to which they compete with American cotton-seed products in the European markets, the reports following have been submitted by consular officers in the various countries concerned...

"The reports of the consular officers have been placed in two groups, the first having to do with the countries that produce the soya bean and the second with the countries that are sought as markets. Statistics as to the imports of soya-bean products in many European countries were not available at the time the reports were submitted, but inasmuch as the prices quoted were generally lower than for other seed products, emphasis has been laid on the relative merits of the two classes of goods as shown by experiments and analyses in these countries. These manufacturers will have to work in meeting this new competition."

Note 1. This is the earliest document seen (Dec. 2007) concerning soybean products (oil or meal) in Turkey, Denmark, Ireland, the Middle East, or Sweden (one of two documents); soybeans as such have not yet been reported in any of these countries. This document contains the earliest date seen for soybean products in the Middle East or Turkey (1909).

Note 2. This is the earliest English-language document seen (Oct. 2001) that uses the term "soya-bean flour." Address: Chief of Dep.

120. Carson, John M. 1909. Soya bean and products: Japan (Document part). *Special Consular Report (U.S. Bureau of Manufactures, Department of Commerce and Labor)* No. 41. Part 5. p. 13-16. Erroneously numbered Special Consular Reports, Vol. XL.

• ***Summary:*** Vice-Consul-General E.G. Babbitt of Yokohama writes: "The soya bean, or soja bean, as it is known here (Common Japanese name 'daidzu' [daizu]), is cultivated throughout the Empire of Japan. The total area of

cultivation is in the neighborhood of 1,200,000 acres, or about 3.8 per cent of the total area devoted to the cultivation of rice and other cereals and grains. The soya bean is often cultivated, not in fields by itself, but in rows along the edges of rice or wheat fields. These edges are, as a rule, very soft, for they have been previously plowed, and little labor is required in planting... In harvesting the plants are uprooted, and, after being dried in the sun for several days, flails are used to separate the beans from the pods. The flails are of a very primitive type, with bamboo handle and of light weight. Female and child labor is invariably employed in flailing.

"The kinds of fertilizers used differ by districts. In the prefecture of Miyagi, for example, straw ashes and superphosphate of lime are commonly employed, while in the prefecture of Akita wood ashes, superphosphate of lime, and horse dung are used."

The average yield of soybeans in Japan over the past 10 years is 15.30 bushels per acre. For the year 1907 the highest yield is from Ishikawa prefecture, 21.62 bushels/acre, whereas the lowest yield is from Okinawa prefecture (Loochoo Islands, south of Kiushu), 8.48 bushels/acre. During 1908 huge amounts of soya beans (3.3 million piculs; 1 picul = 132.277 pounds weight) were imported to Japan from China, Kwantung, and Korea, with small amounts coming from Asiatic Russia. Large amounts of soya-bean cake (7.760 million piculs) were imported from China and Kwantung, with small amounts coming from Asiatic Russia and none from Korea. "The total imports of bean oil in 1908 amounted to only 49,993 pounds, valued at $1,325."

"The soya bean is one of the most important articles of food in Japan. The beans are cooked in various ways, while in brewing soy (shoyu), in the manufacture of miso (pea or bean cheese), tofu (bean curd), koya-tofu (frozen bean curd), and natto (steamed beans) they are the chief ingredient. They are also manufactured into flour and make up the principal part of many Japanese sweetmeats. All these foodstuffs are daily used in Japanese homes.

"To a limited extent soya beans are used as horse or cattle food, being sometimes boiled and mixed with straw, barley, bran, etc."

The vice consul of Kobe states that in 1908 Japan produced 18,812,228 bushels of soya beans. Small amounts are exported "to Hawaii, the United States and Canada for use by the Japanese resident in those countries as an article of food." Three factories in the Kobe district make bean cake, largely from imported, lower-cost soya beans. "The beans are first crushed flat, then put into a big container and steamed, after which they are put into a steam press to extract the oil and to be made into cakes. The cakes come in circular pieces, a yard in diameter and an inch thick, each weighing about 50 pounds. The oil is used for lubricating machinery. The cake is used only as a fertilizer and is not fed to animals as it causes their hair to fall off."

Note 1. This is the earliest document seen stating that soya bean oil can be used as a lubricant.

Note 2. This is the earliest English-language document seen (Feb. 2004) that uses the term "koya-tofu" (or "koya-dofu" or "kôya-dôfu") to refer to dried-frozen tofu.
Address: Chief of Dep.

121. Zavitz, C.A. 1909. The professor of field husbandry and director of field experiments. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 34:170-230. For the year 1908. See p. 205, 222, 230.
• ***Summary:*** The section titled "Grass peas and soy beans" (p. 205) states that the best yielding soy bean varieties are Medium Green (1,031 lb/acre), Ito San (932), and Early Yellow (915), based on average of 4 years grain yield. The Early Yellow variety "has proven to be one of the best for most parts of the Province, as it yields very well and matures early. In the average results of growing the Early Yellow soy beans at the College for 13 years, we find the production to be 15 bushels of the threshed seed per acre."

The section titled "The leguminous crops for green fodder" (p. 222) gives the average results for 5 years for height and tons of fresh cut crop per acre, including: Medium Green soy beans, 32 inches, 8.1 tons (the best yield among 8 legumes). Ito San soy beans, 26 inches, 7.1 tons (#3 best yield). Early Yellow soy beans, 26 inches, 6.2 tons (#4 best yield).

A photo (p. 230) shows a "Nursery plot of Soy Beans."
Address: B.S.A., Prof. of Field Husbandry, Guelph, Ontario.

122. Zavitz, C.A. 1909. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 30:13-37. For the year 1908. See p. 15.
• ***Summary:*** The cooperative work in Agriculture, conducted through the Experimental Union, "has been more extensive during the past year than at any previous time... During the past year, no less than 5,159 applications for experimental material were received. Of this number, 4,420 ex-students of the College and other farmers were supplied with everything necessary for conducting the co-operative experimental work. Owing to lack of help, finances, and material, we were unable to supply 739 applicants..." (p. 13) Since the experiments "have been conducted in every county and probably every township in the Province," they should be of widespread interest and value.

A table titled "Co-operative experiments for 1908" (p. 15), under "Spring grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots." No additional information about soy is given.

"Most of the plots were one rod [5.50 yards or 16.5 feet] wide by two rods long, being exactly one-eightieth of

an acre in size. In former years some plots consisted of one-tenth acre and a few of one-half acre in size, but for most experiments these were found less satisfactory than the small plots." Address: Prof. of Field Husbandry, O.A.C. [Ontario Agricultural College], Guelph [Ontario, Canada].

123. *Daily Consular and Trade Reports (U.S. Bureau of Manufactures, Department of Commerce and Labor).*1910. Soya-bean crushing: Factories planned in both Europe and American Pacific Coast. No. 3681. p. 5. Jan. 10.
• ***Summary:*** "Consul Walter C. Hamm, at Hull, England, writes that it is reported that there are projects on foot in connection with the soyabean industry which may have far-reaching effects both on the industry in Hull and on the Pacific coast of America.

"As stated, one scheme is to erect large seed-crushing mills at Vancouver, British Columbia, and Seattle, State of Washington, where the bean can be crushed and the oil extracted. The Canadian Pacific and lines of steamers running from Vancouver and Seattle to Japan and China are said to be aiding this scheme.

"Another project proposed is to erect large factories in Copenhagen for the production of soya-bean oil and cake. It is hoped that the annual turnover of the new company will at first be not less than $1,100,000 and that 30,000 tons of soya beans will be shipped each year by the East Asiatic Company from Manchuria to Denmark. At present oil cake of various kinds to the value of $7,000,000 is consumed annually in Denmark, of which a large proportion is shipped from Hull. The Manchurian beans are the subject of comment in the report of the P. and O. Company, which speaks of the absorption of a very large amount of tonnage for their export. The report adds:

"'This is a new business in Europe, and whether it may prove a permanent factor in the commerce of this country it is at present impossible to say. Meanwhile the result is that Eastern freights have risen to a moderate extent for the first time for two or three years.'"

Note: This is the earliest document seen (Aug. 2001) that uses the word "crushing" or any of its cognates ("crushers," "crushed," etc.) in the title in connection with soybeans. Address: Washington, DC.

124. Lipman, Jacob G. 1910. Tests of commercial cultures for soil inoculation. *New Jersey Agric. Exp. Station, Bulletin* No. 227. 23 p. Jan. 28. [2 ref]
• ***Summary:*** The products tested were Farmogerm lupine culture (Earp-Thomas Co., Bloomfield, New Jersey); Nitragin (Dr. Reiche Nitragin Co., Milwaukee, Wisconsin); Nitro-Culture / Nitro Culture for Soy Bean (Ontario Agric. College, Canada). Three separate photos (p. 6-7) show a bottle, with legible label, of each culture.

In 1886 a solid foundation was first established for the old practice of soil inoculation. "In that year it was definitively demonstrated by German investigators why the clovers, vetches, lupines, and alfalfa and other legumes were so highly esteemed by the ancients as soil-improving crops." In 1887 "a number of investigators and farmers in Germany began to use old legume earth in establishing new fields of lupines, seradella [serradella], alfalfa, clover and... soy beans" (p. 3-5).

"The commercial possibilities of pure cultures for the inoculation of legumes were first appreciated in Germany about 15 years ago. Under the name of 'Nitragin' such cultures were placed on the market in 1895 and 1896. The practical tests of these cultures soon demonstrated their unreliability and their preparation was therefore abandoned for a time. Another method for preparing and distributing cultures was elaborated by the [U.S.] Department of Agriculture in Washington [DC] in 1904. Also this method was shown to be entirely unsatisfactory and their commercial preparation was discontinued. More recently two other commercial preparations for the inoculation of legumes have appeared in this country:" Farmogerm and Nitragin (p. 6).

Pot and plot experiments in 1909 showed that Farmogerm and Nitragin cultures contain large numbers of vigorous bacteria. However Farmogerm lupine culture failed to inoculate soy beans. Nitragin was not tested on soy beans. Tests of Nitragin cultures for cowpeas on different soils in different parts of New Jersey gave positive results in three out of four cases.

"The experiments recorded here show that on soils properly supplied with moisture, lime, phosphates and potash, the commercial cultures, Farmogerm and Nitragin, are capable of increasing the yields of such leguminous crops as had not been previously grown on the land."

Note: This is the earliest document seen (June 2007) that mentions "Farmogerm"; by 1915 it was used successfully to inoculate soy beans. Address: Ph.D., Soil Chemist and Bacteriologist [New Brunswick, New Jersey].

125. *Monthly Consular and Trade Reports (U.S. Bureau of Manufactures, Department of Commerce and Labor).*1910. Oil-seed products. No. 353. p. 68-79. Feb. See p. 68-70, 76-79.
• ***Summary:*** In the section on "Germany" the following subsections discuss soya-bean meal: (1) "Hamburg market for oil-cake meal and vegetable oils." "The Germans are not taking very kindly to the soya-bean meal. It is thought that possibly 25,000 tons of the meal have been bought, but most of it will go to the extreme northern section around the port of Esbjerg" which is near England. "The English mills are sending out bullish letters concerning this product, stating they are sold far ahead, but all seem to be willing to sell small quantities of a hundred tons or so for prompt shipment."

(2) “Prices and qualities of soya bean and peanut meal.” “Present prices of the soya bean meal are from $32.40 to $33.40 per long ton c.i.f. Hamburg.” Peanut meal is popular in Germany with many of the farmers, and is used in rations for dairy cows. Large peanut crops are expected from the Coromandel (India) and the Gambia (West Africa). The peanut oil and cake is made from Rufisque peanuts; the price of this cake is now $38.40 per ton, but lower grades can be bought for $33.50 per ton.

(3) “Various seed cakes compared.” “Soya bean meal, it is thought, will not influence the feedstuff situation to any great extent in Germany, and unless the peanut meal comes on the market in great quantities high prices of oil meals will continue to rule throughout the season.”

Under “Cocoanut Products,” page 76 notes: “A cotton seed oil crushing mill, the largest in the world, has recently been built in Harburg, which is across the river from Hamburg, by F. Thoerls Vereinigte Harburger Oelfabriken, A.G.”

In the section titled “Sweden: The fodder value of soya meal and cake,” is a lengthy English-language translation of an article on this subject prepared by Nils Hansson, of the Central Institute of Agricultural Experiments.

In the section on the United Kingdom, U.S. Consul Rufus Fleming of Edinburgh [Scotland] gives information already presented in the 21 Dec. 1909 issue of *Daily Consular and Trade Reports* (U.S. Dept. of Commerce, No. 3666, p. 9).

“Hull [England]: Factories planned in both Europe and America Pacific Coast.” It is stated that one scheme is to erect large seed-crushing mills at Vancouver, British Columbia [Canada], and Seattle, State of Washington, where soya beans can be crushed and the oil extracted. The Canadian Pacific and lines of steamers running from Vancouver and Seattle to Japan and China are said to be aiding this scheme. Another project proposed is to erect large mills in Copenhagen [Denmark] for the production of soya-bean oil and cake. An estimated 30,000 tons of soya beans will be shipped each year by the East Asiatic Company from Manchuria to Denmark. Address: Washington, DC.

126. Grisdale, J.H. 1910. The growing of profitable crops for dairy cattle. *Macdonald College Magazine (Quebec, Canada)* 1(1):21-24. Feb/March. See p. 22.
• ***Summary:*** On page 22 is a photo whose caption reads: “A field of soy beans on Macdonald College farm, the farm stables in the background.” A man is shown standing in this large field, which looks to be at least 60 by 200 feet.

Note 1. This is the earliest document seen (Jan. 2010) concerning soybeans in Quebec province, Canada, or the cultivation of soybeans in Quebec province. This document contains the earliest date seen for soybeans in Quebec province, or the cultivation of soybeans in Quebec province (Feb/March 1910).

Note 2. Soybeans are not mentioned in part II of this article. Address: Dominion Agriculturalist, Central Experimental Farm, Ottawa, Canada.

127. Yada, Naganosuke. 1910. Shôyu jôkyô torishirabe no ken [The Japanese shoyu market in Vancouver, British Columbia, Canada]. Vancouver, BC, Canada. 5 p. Sept. 13. Handwritten unpublished manuscript. [Jap; eng]
• ***Summary:*** This is a market report from Mr. Yada at the Japanese consulate in Vancouver, to Mr. Yoshitaro Komura at the Japanese Ministry of Foreign Affairs.

In 1909 1,390 koku (250,200 liters) of shoyu were imported to Vancouver, where about 8,000 Japanese lived. Address: Japanese Consulate, Vancouver, BC, Canada.

128. Higeta Shoyu Jozosho (The “Higeta” brand soy brewery.) Main office: Choshi, Chiba Prefecture (Document part). 1910. In: Japan’s Industries: And Who’s Who in Japan. 1910. Osaka, Japan: Industrial Japan. vi, iii, 687 p., iv p. See p. 152-53. Undated. Translated from unpublished Japanese manuscripts. 29 cm. [Eng]
• ***Summary:*** History: The ‘Higeta’ is one of the brands of soy made in Choshi. The concentrated kind of soy from which it is derived was first brewed in the second year of Genna (1616) by a brewer named Gemba Tanaka. After the quality had been greatly improved, a new variety of the brand was made in the second year of Bunsei (1819), known as ‘Horai.’ When the metropolis was moved from Kyoto to Tokyo in 1868, the firm was honoured by being appointed supplier of soy to the Imperial Household. Since then the business has greatly increased. In 1898 the firm, in conjunction with the Iwasaki and Hamaguchi concerns, started an experimental laboratory, under superintendence of Dr. Ryojun Tawara, and a staff of experts, in which a study was made of soy fermentation. As a result of the investigations, much improvement was effected in the quality of soy generally. In that year, 1898, the Imperial Household ordered a special supply of the ‘Higeta’ brand, and this fact, coupled with the improved methods of salt refining, greatly extended its sale. When the grand military manoeuvres were held in the vicinity of Kumamoto in 1902, attended by His Majesty the Emperor, an order was placed with the firm to supply the army with bottled soy; to commemorate this honour the brewer has sold bottled soy ever since.

“During the Russo-Japanese war, ‘Higeta’ soy was used by the Army Department for seasoning canned foods sent to the front. In 1905 a new kind of soy bottle, with a screw stopper, was made for the troops. Soy was afterwards sold to the public in this form. Since then the firm has gone on flourishing, nothing being left undone to maintain the quality of the brand, and improve it if possible.

"The firm possesses two breweries, fitted up with steam engines, and employing altogether 320 workmen. The 'Higeta' brand soy is used all over the country, especially at Tokyo and Yokohama. It goes also to the United States, Canada, Siberia, China, Korea, Hawaii, the Philippine Islands and the Straits Settlements [later Singapore], being much appreciated in all these markets.

"In addition to being suppliers to the Imperial Household, the brewer has been honoured in other ways. At the Milan Exhibition of 1906, the 'Higeta' brand, which was selected by the Japanese Department of Agriculture and Commerce as a typical soy, was awarded the highest order of the Grand Prix; besides this, the soy was presented to Their Italian Majesties by the Japanese Commissioner for the Exhibition, and they are reported to have expressed to him their high appreciation of its flavour. The following are the principal honours conferred upon the firm by various exhibitions:

"A First Prize at each of the five National Exhibitions.

"The Grand Prize at the Chicago [Illinois] Exhibition, 1890.

"A Gold Medal at the Asian Exhibition (Hanoi, French Indo-China), 1903.

"The highest Grand Prize at the St. Louis [Missouri] Exposition, 1904.

"The Grand Prize of Honour at the Seattle Exposition, 1909.

"Mr. Gemba Tanaka, the proprietor, who was born in 1871, studied political economy at Keio University. On succeeding to the business of his ancestors, he entered into his work with enthusiasm, and by his strenuous exertions did much to extend the sale of the 'Higeta' brand. Owing to the esteem in which he is held in the district, Mr. Tanaka has been elected to represent the highest taxpayers of his prefecture in the House of Peers."

A large photo shows "the interior of a Choshi soy brewery."

Note: This is the earliest document seen (April 2001) concerning Higeta Shoyu. Address: Japan.

129. Kushigata Shoyu Jozosho (The "Kushigata" brand soy brewery.) Main office: Noda, Chiba Prefecture (Document part). 1910. In: Japan's Industries: And Who's Who in Japan. 1910. Osaka, Japan: Industrial Japan. vi, iii, 687 p., iv p. See p. 165-67. Undated. Translated from unpublished Japanese manuscripts. 29 cm. [Eng]

• ***Summary:*** "History: As will be seen by the accompanying articles, most of the soy brewers of Noda are distinguished by the surname of Mogi, and the family of Mr. Hichizayemon [Shichizaemon, Hichizaemon] Mogi, proprietor of the firm of 'Kushigata' brand soy is, in fact, the head and originator of all these distinguished so brewing firms of the same name. One of the ancestors of the Mogi family was a distinguished Samurai in the service of the celebrated warrior and statesman–Toyotomi Hideyoshi–and his daring and deeds of valour are matters of history. With the overthrow of the Toyotomi family he laid aside his sword and entered the field of business. It was 290 years ago that the founder of the firm, the ancestor of Mr. Hichizayemon Mogi settled in Noda as a soy brewer. His distinguished personality and lineage gained for him the deep respect of the inhabitants and he was appointed the headman of the place, thus being called upon to engage in public business as well as his own. At this period, soy was brought over from Osaka to Tokyo, the capital of the Tokugawa Shoguns. The quality of this sauce, however, was very inferior and in view of this Mr. Mogi instructed a member of this branch of the family–Mr. Saheiji Mogi–to brew the 'Kikkôman' soy as an experiment. The results having proved very satisfactory, that brand was brewed on a large scale, and Mr. Mogi subsequently inaugurated the brewing of the 'Kihaku' brand, the two firms being allowed to engage in the brewing of so-called Noda Soy on an extensive scale. These two brands of soy having proved very well suited to the tastes of the citizens of Yedo, the demand increased to such an extent that the output was hardly sufficient to meet the demand. Such being the case, Mr. Hichizayemon Mogi himself engaged in the brewing of soy also. The ripe experience gained by supervising the work of the branch firms in brewing superior varieties of soy proved very valuable to him, and his business also proved a very great success, the name of the new brand of soy 'Ichiyama' becoming quite celebrated within a comparatively short period of time. However, another new branch of the Mogi family's firm being inaugurated under the proprietor-ship of Mr. Yuyemon Mogi, the brand 'Ichiyama' was transferred to the new firm so as to ensure its prosperity and the brand 'Kushigata,' at present in use, was then adopted. Such proceeding may appear somewhat strange, but it was in compliance with the legacy left by the ancestors of the Mogi family that the various branches should unite for the general sharing of profits in their business undertakings. At the time when the fame of the 'Kushigata' brand was at its height, in 1871, the whole premises of firm were unfortunately destroyed by fire. This proved a great blow to the fortunes of the firm but the present proprietor, by dint of sheer energy and perseverance, succeeded in retrieving the lost fortunes of the firm, the yearly output at present far exceeding the former production. Although the yearly output of the main house of Mogi ('Kushigata' brand soy) is below that of the branches, namely the 'Kihaku' and other brands, it has been entirely owing to the good will of the former that the latter firms have been enabled to attain their present prosperous state, the outcome of the traditional legacy of the Mogi family having been carried out by the head of the house

"Present conditions: The firm has at present two factories, the number of hands employed being 600. The

factories are provided with two sets of boilers and steam engines for motive power. The firm produced about 5,270,000 gallons of soy per year, of which about 336,000 gallons are exported to foreign countries, the places of destination being Hawaii, Australia, China, Korea, Canada, British Columbia, the United States, the Philippine Islands, and the Straits Settlements [today's Singapore]. The export trade shows a tendency to increase year by year.

"Honours Awarded: The following are some of the principal prizes and medals awarded to the 'Kushigata' brand soy at the various exhibitions where the firm's products have been shown:–The National Industrial Exhibition from the First to the Fifth. First Prize on each occasion. International [Columbian] Exposition held in Chicago [Illinois], 1893. Gold Medal. International Exhibition held in Paris, 1899. Gold Medal. St. Louis International Exposition [Missouri], 1904. Grand Prix. Alaska-Yukon International Exposition at Seattle, 1908. Grand Prix.

"Proprietor: The present proprietor of the famous firm of the 'Kushigata' brand is Mr. Hichizayemon Mogi, who is the eleventh of the line. Although he is yet young, he places business before pleasure, strictly adhering to the precepts of his ancestors and is devoting his entire energy to the development of his business and the improvement of the particular brand for which the firm is responsible. Having selected a most favourable locality he is, at present, constructing a new factory with the producing capacity of 2,000,000 gallons per year, which promises to be the best equipped factory of its kind in Japan. The machinery employed is to be of the latest pattern, and it is intended that electricity be used as the motive power."

A photo (p. 166) shows "The pumping machinery of soy." Around the pump are many brick walls. Address: Japan.

130. Piper, Charles V.; Morse, W.J. 1910. The soy bean: History, varieties, and field studies: Early agricultural history in the United States (Document part). *USDA Bureau of Plant Industry, Bulletin* No. 197. p. 26-27. Dec. 31. [14 ref]

• ***Summary:*** "The first mention of the soy bean in American literature is by Thomas Nuttall, in the New England Farmer, October 23, 1829. Nuttall grew a variety with red flowers and chocolate-brown seeds in the botanic garden at Cambridge, Massachusetts.

"In the same journal two years later, November 23, 1831, is an account of the successful culture of the plant at Milton, Massachusetts, the seed having been obtained from Nuttall. No further mention of the plant in American literature appears until 1853, when a brief account appeared under the name 'Japan pea,' by A.H. Ernst, Cincinnati, Ohio...

"In the following year, 1854, the Perry expedition brought back two varieties of 'soja bean' from Japan, one 'white' seeded, the other 'red' seeded. These, together with the Japan pea, were distributed by the Commissioner of Patents in 1854, and, thereafter, frequent references to the plant occur in agricultural literature under such names as Japan pea, Japan bean, and Japanese fodder plant. Most of these articles speak of the plant as the Japan pea, none of them as the soy or soja bean. It is apparent from the early accounts that there were at least two Japan peas, one early enough to mature in Connecticut (Patent Office Report, 1854, p. 194), the other very late (American Agriculturist, 1857, vol. 16, p. 10). Judging from all the accounts, we suspect that the early Japan pea may be the Ito San variety, which, however, has red flowers, while the late variety may be the Mammoth. The Ito San is still occasionally called the Japan pea, while the introduction and source of the Mammoth has never been definitely determined. From these early accounts the Mammoth may well be the 'white-seeded' soja bean obtained by the Perry expedition. The 'red-seeded soja bean' was perhaps, the Adsuki [azuki] bean *(Phaseolus angularis),* as no red-seeded soy bean is known.

"Prof. G.H. Cook, of New Brunswick, New Jersey, obtained seed of the soy bean at the Bavarian Agricultural Station in 1878. In the same year Mr. James Neilson obtained seeds of several varieties at Vienna, Austria. Both of these gentlemen planted the seeds and gathered crops of the different varieties in 1879. These varieties were without doubt those grown and distributed through Europe by Professor Haberlandt, of Vienna.

"A yellow-seeded soy bean was grown at the North Carolina Agricultural Experiment Station in 1882 and reported on in some detail. The source of the variety is not given, but by implication it is the same as the variety stated to be grown by a number of persons in the State, and is probably the Mammoth.

"Two varieties, one black seeded, the other with white seeds, were grown at the Massachusetts Agricultural Experiment Station in 1888. In 1890 Prof. C.C. Georgeson secured three lots of soy beans from Japan which were grown at the Kansas Agricultural Experiment Station in 1890 and subsequently. Prof. W.P. Brooks, of Amherst, Massachusetts, brought with him from Japan in 1889 a number of soy-bean varieties, including the Medium Green or Guelph, and the Ito San. It is quite certain that other importations of soy beans from Asia were made by others, but no definite records have been found. [Note: The Guelph variety was NOT developed in Canada.]

"Since 1890 most of the agricultural experiment stations have experimented with soy beans and many bulletins have been published dealing wholly or partly with the crop." Address: 1. Agrostologist; 2. Scientific Asst., Forage-Crop Investigations, Bureau of Plant Industry, USDA, Washington, DC.

131. Piper, Charles V.; Morse, W.J. 1910. The soy bean: History, varieties, and field studies: Varieties introduced into the United States independently of the Department of Agriculture or previous to 1898 (Document part). *USDA Bureau of Plant Industry, Bulletin* No. 197. p. 27-31. Dec. 31. [14 ref]

• ***Summary:*** "Enumeration: Previous to the numerous introductions by the United States Department of Agriculture beginning in 1898, there were not more than eight varieties of soy beans grown in the United States, namely, Ito San, Mammoth, and Butterball, with yellow seeds; Buckshot and Kingston, with black seeds; Guelph or Medium Green, with green seeds; and Eda and Ogemaw, with brown seeds." The history of and information about each of these eight soybean varieties is given in great detail.

U.S. seedsmen or seed companies which have carried these soybeans include: Mr. E.E. Evans, West Branch, Michigan (1901); J.M. Thorburn & Co. (1901); W.A. Burpee (1902); Hammond Seed Co. (1903); Johnson & Stokes (1902); W.T. Wood & Sons, Richmond, Virginia (1889).

Foreign seedsmen include: Vilmorin-Andrieux & Co., Paris, France (1901); Haage & Schmidt, Erfurt, Germany (1908); Dammann & Co., Naples, Italy (1908).

Note: This is the earliest document seen (June 2003) stating that soybeans were being sold by W.A. Burpee (1902). Address: 1. Agrostologist; 2. Scientific Asst., Forage-Crop Investigations, Bureau of Plant Industry, USDA, Washington, DC.

132. Itie, G. 1910. Le soja: Sa culture, son avenir [Soya: Its cultivation, its future]. *Agriculture Pratique des Pays Chauds (Bulletin du Jardin Colonial)* 10(93):485-93. Dec. [23 ref. Fre]

• ***Summary:*** Contents: Mixed cultures (growing soybean with other crops, such as corn). Rotations. Yields of soybeans (grain/seeds). A table (p. 490) gives the yield (in hectoliters/hectos per hectare) of 20 soybean varieties at many different locations, mostly in the USA, with one in Canada; the highest yields range from 33 to 36.3. Eight more small tables (p. 492-93) give additional information on soybean seed yields from China, Manchuria, Hungary, Germany, Italy, and Algeria. Note 1. The author is presently a professor at the School of Agriculture in Mexico.

Note 2. This document contains 10 tables, mostly from other sources. Address: Ingenieur d'Agriculture coloniale, Professeur à l'École d'Agriculture de Mexico.

133. **Product Name:** Tofu.
**Manufacturer's Name:** Un-named Japanese tofu makers (two).
**Manufacturer's Address:** Vancouver, BC, Canada.
**Date of Introduction:** 1910.
**New Product–Documentation:** Nichibei Shinbun-sha. 1910. *Nichi-Bei Nenkan [Japanese-American Yearbook]*. Census entry p. 224. Two tofu shops in Vancouver, British Columbia, Canada. Two male owners and no employees.

134. Henderson (Peter) & Co. 1910. Henderson's farmer's manual (Mail-order catalog). New York, NY: Printed by John C. Rankin Co. 48 p.

• ***Summary:*** A photo on the cover shows farmers with pitchforks piling hay onto a wagon pulled by horses. Page 34 is devoted to Soy Beans. Across the top of the page is written "Farm Seeds... Henderson's High Grade. The top one-third of the page shows a photo titled "Early Soja Beans," with a man standing in a field of chest-high soybeans. The caption reads: "Field of Early Soja Beans at Central Experimental Farm, Ottawa, Canada." Inset in the lower right corner of the photo is an illustration (line drawing) of a soybean plant with the words "Henderson's Early Soja Bean" written on a scroll.

Below the photo in large letters is written: "Early Green Soja or Soy Beans." Below that in smaller letters: "Valuable for either fodder or grain. Produces enormous crops as far north as Canada. Ripening seed as far north as Massachusetts. A great soil enricher: Gathering nitrogen from the air. Especially valuable (in combination with Japanese millet and fodder corn) for ensilage. Supplying albuminoids for flesh-forming food."

The text begins: "Soja beans have attracted much attention in recent years on account of their high feeding qualities, but all were too late to be of value in the Northern States. This early green variety has proved its earliness and value in the Northern States by not only producing large fodder crops, but ripening the seed as far north as Massachusetts."

"We recommend all farmers to plant this year at least an acre or two of our early Green Soja Beans and an equal area of Japanese Millet, to test and prove for themselves the value of the combination..." According to Prof. W.P. Brooks, of the Hatch Experiment Station, Massachusetts, the Soja Beans should be sown four to five weeks after the millet. "Price, 15c. lb.; $1.75 peck; $5.00 bushel, 60 lbs.; 10-bushel lots, $4.85 bushel."

Across the bottom of the page is written: "Henderson's Superior Seeds are procurable only from us direct–we do not supply through Dealers."

An Index lists all plants that appear in the catalog. The last page in the catalog (p. 48), titled "Garden and Farm Books," lists the author and title of about 50 such books, under six categories, with a brief description of each and the price. Includes books or booklets titled *Forage Plants Other Than Grasses, Ginseng, Hemp,* and the *Peanut Plant: Its Cultivation and Uses.* The most expensive book, postpaid, costs $2.00. Address: 35 and 37 Cortland St., New York, New York.

135. Hutchinson, H.P. 1910. The soya-bean as an English crop. *J. of the South-Eastern Agricultural College (Wye, Kent)* No. 19. p. 318-21.

• ***Summary:*** "In May, 1909, twelve Soya-beans (variety unknown) taken from a sample supplied by a seedsman, were planted singly in twelve inch pots and kept throughout the experiment under glass at a temperature of about 65º F." The plants grew well but developed few pods and failed to produce a satisfactory yield. No nodules were present on the roots.

"By request, Professor Klinck of Macdonald College, Quebec [Canada], kindly sent, in March 1910, a few ounces of soil in which soya beans had been grown the previous year. Enclosed were two samples of Soya-beans–Early Tennessee (Brown) and Early Yellow." Again the yield was poor and there were no nodules.

Next, three soya-bean "plants of each variety were inoculated with the soil sent from the Macdonald College. The other six plants were not inoculated. The twelve plants were grown under the same conditions in the open air. No difference was noticeable until the first week in August, when flowering commenced. From this time a striking difference began to show itself between the two sets of plants. The inoculated plants, in all cases, continued to grow vigorously. The leaves retained their green colour, and the pods were large and well-filled." By contrast, the leaves of the uninoculated plants turned yellow and dropped off, and the pods which developed were smaller and fewer in number. Nodules were present on the roots of every inoculated plant, "varying in size from small shot to a pea."

It was concluded that inoculation is essential, that soybeans could probably be cultivated profitably in England, and that "Early Tennessee" is probably a suitable variety.

Note: This is the 2nd earliest document seen (Jan. 2010) concerning soybeans in Quebec province, Canada, or the cultivation of soybeans in Quebec province. This document may contain the 2nd earliest date seen for soybeans in Quebec province, or the cultivation of soybeans in Quebec province (spring 1909). However, we cannot be certain that the "soil in which soya beans had been grown the previous year" was from Quebec; Prof. Klinck may have obtained the soil from outside Quebec in order to use it in the spring of 1910 in his experiments with soya beans. Moreover, we cannot be sure that Prof. Klinck grew soybeans at Macdonald College in 1910. In fact, the *Report of the Minister of Agriculture of the Province of Quebec* (Harrison 1915) seems to indicate that soybeans were first grown at Macdonald College in the spring of 1911. It is not known from where Prof. Leonard Silvanus Klinck, who was in charge of agronomy work at Macdonald College, obtained these soybeans.

136. Nichibei Shinbun-sha (Nichi-Bei Shinbunsha). 1910. Nichi-Bei nenkan [Japanese-American yearbook. No. 6]. 650 Ellis St., San Francisco, California. 278 p. Reprinted in 2001-02 in Tokyo by Nihon Tosho Senta. Series: Nikkei Imin Shiryôshû. Dai 5-kai [Collected Documents on Japanese Emigration. No. 5]. [Jap; eng]

• ***Summary:*** This book is read and numbered from "back to front" compared with typical English books; it is mostly (99%) in Japanese. The English-language title page reads: *The Japanese American Year Book.*

The book is divided into 10 parts, each numbered separately. Contents: (1) Front matter, incl. 1 ad (5 p.) (2) Table of contents (3 p.). (3) Map of California agriculture (fold out, in Japanese, 1 p.). (4) Black and white photos on unnumbered pages (6 p., single sided). (5) Front part of Nichibei Nenkan No. 6 (p. 1-237), including general information about America, Japanese in America, U.S. and agricultural census data, etc. (6) Ads (9 p.). (7) Nichibei Nenkan continued (p. 238-50). (8) Original printing and publication dates and data (1 p.) (9) Ads (2 p.). (10) New printing and publication dates (2001), data, and ISBN (1 p.).

A table (p. 39) shows Japanese population by states. For each state the population is subdivided by men, women, and children. For Japanese, the 8 most populous states are: California 55,901, Washington 16,930, Colorado 4,557, Oregon 3,873, Utah 2,529, Idaho 2,399, New York 2,260, and Wyoming 1,409. The totals are: Adult men 87,170. Women 7,323. Children 4,222. Total 98,715.

A table (p. 42) compiled from census data, shows that there were 2 shoyu makers in the USA, with 2 male owners and 4 male employees. There were 42 tofu makers with 47 male owners, 10 male employees, and 1 female employee.

Note: Unlike other volumes, this relatively slender 1910 volume has no directory to give us the names the names and addresses of these Japanese tofu and shoyu makers in the USA.

A table (p. 54-55) shows the general population (not only Japanese) each decade in California from 1850 to 1910: It grew from 92,597 in 1850, to 379,994 in 1860, to 1,208,130 in 1890, to 1,484,053 in 1900, to 2,564,363 in 1910.

A table (p. 56) shows the Japanese population of California: 120 in 1878, 270 in 1880, 420 in 1884, 500 in 1885, 1,000 in 1887, 2,300 in 1890, 4,500 in 1892. 6,000 in 1895, 13,000 in 1897, 25,000 in 1900, 30,000 in 1902, 35,000 in 1903.

A table (p. 56-60) shows the 1910 Japanese population in various counties and cities in California. For each it subdivided into men, women, boys, and girls. In 1910 the Japanese population of California was 55,901, which was about 2.2% of California's total population.

A table (p. 62) shows the total value in 1900 of various crops in the USA and California. The soybean crop was worth $7,634,262 in the USA and $1,022,586 in California.

A table (p. 172) gives the population of Japanese in California by occupation; there is 1 shoyu maker (in Oakland) and 32 tofu makers.

The Directory shows Japanese companies making soyfoods in California, Oregon, Washington, Utah, Colorado, New York City, and Vancouver, British Columbia, Canada. Address: San Francisco, California.

137. Zavitz, C.A. 1910. The professor of field husbandry and director of field experiments. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 35:163-230. For the year 1909. See p. 206, 228.
• ***Summary:*** The section titled "Soy beans" (p. 206) states: "The Soy beans, also known as Soja beans, are grown extensively in Japan, but they never received very general cultivation in America, except possibly in a few places in the United States. The crop furnishes exceedingly rich feed for farm stock and the plants may be cut and converted into silage or they may be allowed to ripen for the production of grain. Although there are a large number of varieties of Soy beans, the most of them require a long season to reach maturity and are quite unsuited for cultivation in Ontario. Although varieties have been obtained by the Agricultural College on various occasions, extending back for fully sixteen years, only two kinds have become at all prominent in our experimental work, viz., the Early Yellow and the Medium Green. The Early Yellow variety has proven to be one of the best for most parts of the Province as it yields very well and matures early. In the average results of growing the Early Yellow Soy beans at the College in each of fourteen years, we have obtained 14.8 or practically 15 bushels of threshed seed per acre. In 1909, no less than sixteen varieties of Soy beans were grown in the Experimental department."

The section titled "Leguminous crops for green fodder" (p. 228) states: "In 1909, twenty different varieties of Soy beans, Cow peas, vetches and grass peas were grown for the production of fodder... The greatest yields in tons per acre in 1909 were produced by the following varieties: Habara [Habaro] soybeans, 9.2 tons; Grass peas, 8.0 tons; Amherst soy beans, 7.6 tons; Shingto soy beans, 7.5 tons; Cloud soy beans, 7.4 tons; Hairy vetches, 6.8 tons; Tsurunoko soy beans, 6.5 tons; Chernie soy beans [black-seeded], 6.1; and Nuttall soy beans, 6.1 tons.

"Six varieties of leguminous crops have now been grown for five years in succession for the production of green fodder. The greatest yields have been obtained from the Grass peas, 6.9 tons; Ito San soy beans, 6.8 tons; Early Yellow soy beans, 5.5 tons; and Wonderful Cow peas, 5.2 tons per acre."

A long section titled "Alfalfa or lucerne" (p. 228-30) begins: "A bulletin on Alfalfa or Lucerne was issued in the spring of 1908. The bulletin referred to results of experiments conducted at the Ontario Agricultural College and referred to the reports of co-operative experiments in Alfalfa growing throughout Ontario." A large table (p. 228) shows yields of alfalfa each year from 1896 to 1909 for the green crop and for hay, for the first, second, and third cuttings of each. Three cuttings sometimes yield more than 25 tons of the green crop and more than 6.9 tons of hay.

Also discusses: Flax seed, buckwheat, field peas, field beans, millet, winter emmer, sunflowers for seed, sorghums for seed, cap yellow dent corn, mangels, sorghums for fodder, sunflowers for fodder, millets for green fodder and for hay. Address: B.S.A., Prof. of Field Husbandry, Guelph, Ontario, Canada.

138. Zavitz, C.A. 1910. The relation between the size of seed and the yield of plants of farm crops. *Proceedings of the American Society of Agronomy* 1:98-104. For the years 1907-1909. Presented at the meeting in Ithaca, New York, July 1908.
• ***Summary:*** During the past 14 years, experiments at OAC with grains crops (including field peas), root crops, field rape, and Irish potatoes have shown that large seeds will give a greater yield than an equal number of smaller seeds. Soy is not mentioned.

Note: This is the earliest article see by C.A. Zavitz published in these proceedings. Address: Ontario Agricultural College, Guelph, Canada.

139. Zavitz, C.A. 1910. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 31:13-38. For the year 1909. See p. 15, 22.
• ***Summary:*** A table titled "Co-operative experiments for 1909" (p. 15), under "Spring grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots."

In the section on "Grain crops," the subsection titled "Soy beans" (p. 22) states: "The past season has been very unfavorable for the growth of soy beans in Ontario. Although seed of each of two varieties was distributed in the spring, no reports have been received which could be properly summarized for presentation in tabular form. One man in Lambton County had a yield of 20 bushels of grain per acre of the Early Yellow variety in the past season, which was about five bushels per acre more than the yield obtained from the same variety at the College." Address: Prof. of Field Husbandry, O.A.C. [Ontario Agricultural College], Guelph [Ontario, Canada].

140. Prof. Charles Ambrose Zavitz seated at his disk (Photograph). 1910? Undated.
• ***Summary:*** This black-and-white undated photograph of Prof. Zavitz (lived 1863-1942) is 7 by 5½ inches. Behind him are many books in shelves. At the bottom is printed: "Professor Zavitz. Department of Field Husbandry." Talk with James R. Zavitz. 2001. Dec. 6. The photo (dating from

about 1910) was taken in Prof. Zavitz's office in the southwest corner of the Field Husbandry Building, on the first floor. The desk was positioned so he could look out a window in the end of the building over his experimental plots, or he could turn to the left and look out window over the stone cottage where he resided.

141. Shaw, Norman. 1911. The soya bean of Manchuria: Beginnings of the European trade, 1904-1910 (Document part). *Shanghai, Statistical Department, Inspectorate General of Customs. China Imperial Maritime Customs. II. Special Series* No. 31. 32 p. See p. 20-21. Also published by P.S. King & Son, 2 Great Smith St., Westminster, London SW, England. [6 ref. Eng]
• ***Summary:*** "During the Russo-Japanese war [Feb. 1904-1905] the vast armies which occupied the whole of South and Central Manchuria depended for their cereal food largely upon the local supplies, and a great impulse was given to Manchurian agriculture at that time. But after the withdrawal of the troops the cessation of local demand called, in the natural course of events, for the discovery of a fresh market, and especially so for the money crops of wheat and beans. The market for these crops seemed at first to be the neighbouring one of Japan, and the trade *via* Vladivostock [Vladivostok] received the earliest benefit from the new development; but when the *post-bellum* wave of depression swept over Japan the demand ceased there, and it became necessary to find a new field for the consumption of the surplus supplies. Before the creation of this new situation farmers had been content to plant small areas with but slight annual increase, merely adjusting the supply to the restricted demand; but the time was now ripe for a great development of the trade.

"It was in November 1908 that Messrs. Mitsui & Co. made the first considerable trial shipment to England. The result was so satisfactory that an order for a large consignment followed, and in March 1909 the first large cargo–5,200 tons–was landed in Hull. Contracts were at once made, as the suitability of the new oil seeds for many purposes became known and the good condition in which they arrived. During the season 400,000 tons were exported, almost all to England, and 'many of the large oil crushing mills set their entire plant to work on the crushing of the beans, to the exclusion of cotton seed, linseed, and other oleaginous seeds; the supposed shortage of the flax and cotton crops in the United States and the anticipated shortage of linseed in the Argentine, with the resultant scarcity of cotton seed and linseed products, found the English market comparatively unperturbed, for the reason that soya oil and cake can supply most of the requirements as well.' Messrs. Lever Brothers, of Port Sunlight, were the first soap manufacturers to use bean oil on an extensive scale, and were followed shortly by others, so that the demand increased to such an extent that for the new season (1909-10) 50 steamers were chartered to load beans at Dairen and Vladivostock, 300,000 tons, worth £2,000,000, being contracted for in December alone."

"The removal of the duty which had until this year (1910) been imposed on beans in Germany, followed by similar action on the part of the Canadian Government (which is said to be desirous of obtaining soya beans as feed for hogs, in order to revive the bacon trade), has opened fresh channels for export and stimulated competition for the raw material. But apart from this, the bean oil trade seems likely to receive the most rapid development: the first steamer to carry away a cargo of the oil in tanks has recently visited Newchwang. At present bean oil is carried in old kerosene oil tins or drums; but the method is not very satisfactory, complaints being made of loss by leakage. The tins cannot be returned to Manchuria, for freight is too high, and casks are not so suitable for stowing as tins in cases, so that the solution of the problem of conveying the oil to Europe seems to lie in the tank steamer, which would take the oil as a return cargo." Address: 4th Asst., Custom House, Dairen.

142. *Daily Colonist (Victoria, BC, Canada).*1911. On the waterfront: Panama Maru from Far East. Osaka Shosen Kaisha liner reached the outer wharf yesterday from Yokohama and other Oriental ports. 103(412):14. April 6.
• ***Summary:*** "The steamer Panama Maru of the O.S.K. line reached the outer wharf yesterday after a fair passage from Yokohama with 31 passengers and a good cargo including 444 bales of silk worth a quarter of a million dollars. In the cargo for Victoria was a shipment of 500 tubs of soya bean oil, the product of the soya bean grown in Manchuria in which a profitable trade has been worked up during the past few years, 450 bags of peanuts, 251 cases of rattan furniture, 150 mats of rice, 140 tubs of sake,... 100 tubs of soy [sauce] and some general merchandise."

There is a famine in the interior of China. A new Japanese tariff, which goes into effect July 1st, has caused a rush of shipments to ports in that country.

143. *Gazette (The) (Montreal, Quebec, Canada).*1911. Trade & finance: Markets steady to higher. May 22. p. 20.
• ***Summary:*** "Wheat futures rose within fractions of the recently established 12-month peaks at Chicago and closed 3/8 to 5/8 cent higher on the day on scattered buying by mills and professionals with the more pronounced gains in corn and soy beans helping to buoy the market."

144. *Ottawa Free Trader (Ontario, Canada).*1911. Soy beans rich food for live stock: Now is the time for planting–Adapted to any soil. Harvest not difficult. Peas that furnish their own sticks–Feeding value exceptionally high–Better than clover hay–Excellent feed. June 23. p. 11.

• ***Summary:*** "'I'm Captain Jinks of the "Hoss" Marines, I fed my "hoss" good corn and beans.' This old ditty has a familiar sound to almost everyone. Maybe 'even though we are grown ups,' we sometimes have this song run through our minds. How few of us stop to think, however, that the last line of the couplet expresses a truth that we are just beginning to recognize."

Corn and beans "form an almost ideal balanced ration for, not only horses, but all livestock as well.

"Most people think of navy beans, string beans, or lima beans when the word 'beans' is spoken, but this is not the sort of beans we wish to speak about, and it is doubtful if it is the sort referred to in the couplet used as a heading."

Now "is the time to try some soy beans.

What are soy beans? Soy beans, or soys as they are most commonly called, are not beans at all. They are actually peas. True beans send up cotyledons as their first pair of leaves, but, like peas, the soy bean sends up a pair of seed leaves [sic].

"The Soy bean is a native of Asia, but unlike the Asiatics it is not only admitted to the United States but is welcomed as well." "Soys are best planted only after the soil is thoroughly warm." "Soys are not difficult to harvest... since they may be harvested with the regular grain binder and shocked not unlike wheat or oats."

Seven advantages of soys over any of the legumes commonly grown are given. "Why not try a patch this year? Prove for yourself that Captain Jinks knew what he was talking about."

145. *Gazette (The) (Montreal, Quebec, Canada).*1911. Grain markets. Aug. 1. p. 21.
• ***Summary:*** Chicago: Cash prices... Soy beans, 2 yellow, 1.48½.

Range of futures: Soy beans: (old): For Oct., Nov., and Dec. gives High, Low, Close, and Changes.

Soy beans: (new): For Oct. gives High: 139 5/8. Low: 138 3/8, Close: 139½. Changes: 3/8.

146. *Wall Street Journal.*1911. World's crop of linseed the largest since 1904. Oct. 30. p. 3.
• ***Summary:*** Flaxseed production in the USA is expected to be 18 million bushels, up from 14 million bushels in 1910. This increase in supply is expected to bring prices down sharply. The price will also be affected by increased production "of the Soya bean in China [Manchuria] and the cottonseed crop in the United States." These three large crops of vegetable oil are expected to make the supply of raw material for seed-crushing one of the largest since 1904. A correspondent of Dornbusch in Brussels, Belgium estimates the linseed crops available for export for 1911-1912 in tons as follows: (1) Argentina 1,220,000. (2) India 550,000. (3) Canada 150,000. (4) Russia 130,000. Total: 2,050,000 tons exportable.

147. *Stanstead Journal (Rock Island, Stanstead, Quebec, Canada).*1911. Farm and field: Export of soy beans from Japan. New industries are created. Nov. 2. p. 4.
• ***Summary:*** "Since the war between Japan and Russia, the export of soy beans from the East to Europe has largely increased. At one German port alone, we are told, 4,823 tons of these were imported in one shipment. The oil from these beans is said to be one-third cheaper than linseed and can be used for making soap and many other products including food. The bean meal is used for cattle feeding and also mixed with flour for human food [sic]. In fact, few agricultural products have made such changes in both farm and manufacturing industries as the soy bean promises to do in Europe.

"The soy bean has been grown in a comparatively small way in Ontario. It is not only a soil improver, but a very rich food, ranking with linseed."

148. *J. of the New Zealand Department of Agriculture.*1911. The soya bean. Its possibilities in commerce. 3(6):487-88. Dec. 15. [1 ref]
• ***Summary:*** "In a recent communication to the Department, the High Commissioner in London conveys much interesting information of the soya-bean industry. This bean, which is taking a commanding position in the Old World [Europe] as a food for stock, has not yet been tested on a commercial scale in this part of the world; but added interest is being attached to it with the growing appreciation of the need of better feeding of our live-stock. The department is testing a number of varieties of soya bean received from the United States Department of Agriculture at the Tauranga Experimental Farm..."

The report notes that from Dalny (in Manchuria) and Vladivostok (in Russia) large quantities of soya beans are shipped to the United Kingdom. Small consignments of the bean and oil are received from Japan. "'These beans contain from 17 to 18 per cent. of oil, which is pressed out by ordinary crushers or extracted by the solvent extraction process. Originally the oil was used for soap-making but now it is used not only for this purpose, but much more largely for replacing linseed-oil. It is also used for lubricating, burning, and for edible The residue, after the oil has been extracted, is now well recognized as being one of the best foodstuffs for cattle. It is exceedingly rich in albuminoids in a readily digestible form. The opinion is expressed that in time this residue will come to be used as human food. Note: This is the earliest English-language document seen (March 2003) that uses the term "solvent extraction" in connection with the commercial crushing of soybeans to give oil and meal.

"'The greater quantity of the soya-bean supply is shipped direct to this country, is crushed either in Hull or Liverpool, and large quantities of the oil are shipped to the

[European] Continent. I am informed that bean-oil, without the aid of driers of some kind, will not dry hard...

"'Experiments have been made in many countries to grow soya beans and apparently some of these experiments have been perfectly successful, as the Hull Oil-manufacturing Company have received samples grown within 200 miles of Calcutta, and the bean is now offered in small quantities from South Russia. Experiments are being made in Rhodesia, Canada, South America, and other places within the wheat and cotton belts.'" Address: New Zealand.

149. Mexico. Ministerio de Fomento, Colonización e Industria. 1911. La soya: Traduccion de varias publicaciones extranjeras sobre la explotación de esta planta [Soya: Translations of various foreign publications on the development and cultivation of this plant]. Mexico: Secretaria de Fomento. 57 p. [3 ref. Spa]

• ***Summary:*** The *Ministerio de Fomento* is the Ministry of Public Works. The first three-fourths of this publication contains Spanish-language translations of the following three articles: (1) "The soybean: A valuable fodder plant" by H.J. Choles (p. 3-26). Contents: Introduction. Botany and history of the soybean *(de la Soya).* Varieties. Cultivation: Conditions of growth, methods of culture. Harvesting: When to harvest, curing, harvesting for seed, yield of forage, yield of seed. Chemical composition. Digestibility. Value and uses of the crop: For green forage, as a silage crop, as a hay crop, as a pasture plant, as manure, value of the soybean as human food.

(2) "Utilization of soybeans" by E.S. Edic [sic, Edie] from *Estación Agrícola Central–San Jacinto.* Jan. 1911 (p. 26-36). Contents: Introduction. Uses of the soyabean: As a forage plant, hay, ensilage, soy oil *(El aceite de soya),* soymilk *(leche de soya),* a type of cheese *(una especie de queso)* [tofu], soy flour *(harina de soya),* use of soybean oil for margarine *(margarina),* for soap, illumination, paints and other industrial products, soy bean meal used as a fertilizer on Chinese sugar plantations, soybeans as a legume for enriching the soil with nitrogen. The cultivation of soybeans. Varieties of soybeans.

(3) "Importance of the Soybean: Products which can be obtained from the soybean. Its marvelous value as food." reprinted from *Milling* magazine, Aug. 1909 (p. 36-42).

The last one fourth of this publication (p. 42-57) discusses the following: The soybean (possibilities for importation to Mexico). The new world trade in soybeans. Soybean production in the British empire (Sir Alfred Jones, soya in Africa, trials in British Columbia). Consumers of soybeans (Countries that import the seeds, especially for their oil to make margarine, soap, and paints; Canadian research commission). As a food. Dark bread. Wheat gluten. The latest news about soya: Products that can be obtained (oil and meal), the soybean (vegetable casein), experiments making bread with soy flour, opportunity for the manufacture of biscuits or crackers *(galletas).* Summary.

Note 1. This is the earliest Spanish-language document seen (Sept. 2006) that mentions soy oil, which it calls *El aceite de soya.*

Note 2. This is the earliest Spanish-language document seen (Oct. 2003) that uses the term *leche de soya* to refer to soymilk. As of Oct. 2003 *leche de soya* is the modern Spanish term for soymilk. Address: Mexico.

150. Zavitz, C.A. 1911. The professor of field husbandry and director of field experiments. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 36:169-247. For the year 1910. See p. 217-18.

• ***Summary:*** The section titled "Varieties of soy beans" (p. 217-18) states: "Soy beans or Japanese beans have been advertised in seed catalogues under the name of Soja beans. During recent years, a considerable interest has been taken in this crop in England, the United States, and in Canada... Probably thirty varieties in all have been under experiment in our college, but only a few of these ripen their seed. The two varieties that have become the most prominent in our experiments at Guelph are Early Yellow and Medium Yellow. [Note: The Guelph variety was not developed in Canada.] The Early Yellow variety has proven to be one of the best for most parts of the Province as it yields very well and matures early. In the average results of growing the Early Yellow Soy Beans at the College in each of fifteen years we have obtained exactly 15 bushels of threshed seed per acre.

"In 1909 and again in 1910, no less than sixteen varieties of Soy Beans were grown in the Experimental Department. A number of these were tested in 1909 for the first time, several of them being obtained from Dr. Piper, Department of Agriculture, Washington [DC]."

In 1910 soybean trials, the greatest yields were obtained by the following varieties: Chernie 23.5 bushels/acre, Habara [Habaro] 21.6 bu, Buckshot 21 bu, Tsurunoko 19.6 bu, Akasaya 17.5 bu, and Early Yellow 17.2 bu. All other varieties gave 15 or less bushels per acre. Address: Guelph, Ontario.

151. Zavitz, C.A.; Squirrell, W.J. 1911. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 32:14-44. For the year 1910. See p. 16, 19, 24.

• ***Summary:*** This volume begins with a list of the name and address of all members of the Ontario Agricultural and Experimental Union. A table titled "Co-operative experiments for 1910" (p. 16), under "Grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots."

In the section on "Grain crops," a full-page table titled "Grain crops, 1910" (p. 19) shows that 2 tests were

conducted on "Soy beans." Brown (comparative value 100), yielded 0.16 tons/acre of straw and 9.00 bu/acre (540 lb/acre) of grain. Early Yellow (C.V. 100), yielded 0.40 tons/acre of straw and 8.00 bu/acre (480 lb/acre) of grain. (Note: Since the weather and rainfall were normal, it is not clear why the yields were so low.)

The subsection titled "Soy beans" (p. 24) states: "About twenty varieties of soy, soja, or Japanese beans have been grown in an experimental way at the College. Most of these varieties require too long a season to give satisfactory results in this Province. From this list, however, two of the earliest varieties have been selected and have been sent out for experiments in the Province. The results are very meagre for 1910, and show the yields to be comparatively low. It should be remembered, however, that the soy beans are exceedingly rich in digestible nutrients, comparing favorably with cotton seed meal when ground and used for feeding purposes. The Early Yellow variety, which has been grown at the College in each of the past fifteen years, have given an average of 15 bushels, or 900 lb/acre of grain. The yield of the Early Yellow variety at the College in 1910 was 17.2 bushels, which was very much higher than the average yield of the experiments conducted on two Ontario farms." Address: 1. Prof. of Field Husbandry; 2. Lecturer in Field Husbandry. Both: O.A.C. [Ontario Agricultural College], Guelph [Ontario, Canada].

152. Yada, Naganosuke. 1912. Honpô shôyu shôkyô hôkoku no ken [The Japanese shoyu market in Vancouver, British Columbia, Canada]. Vancouver, BC, Canada. 10 p. Nov. 22. Handwritten unpublished manuscript. Requested by Mogi Shichirouemon of Noda, Chiba-ken. [Jap; eng]

• ***Summary:*** This is a market report from Mr. Yada at the Japanese consulate in Vancouver, BC, Canada, to Mr. Yasunari Uchida at the Japanese Ministry of Foreign Affairs.

There are about 9,000 Japanese living in Canada. Japanese shoyu imports were about 15,400 taru (249,500 liters) a year, and it was used almost entirely by Japanese. The best selling brand is Kikkoman. Address: Japanese Consulate, Vancouver, BC, Canada.

153. Bradbury, Frederick. 1912. History of Old Sheffield Plate: Being an account of the origin, growth, and decay of the industry... London: Macmillan and Co., Ltd. xiii + 539 p. See ix, p. 197, 271. Illust. General index. Index to marks. 30 cm. [25* ref]

• ***Summary:*** This is a very interesting and original book, with much new information about and photos of early soy cruets and soy frames. In the 1740s craftsmen in Sheffield, England (long known for its cutlery and metalwork), invented the process for making articles from silver plated on copper by fusion; this process is much older than electro-plating. Before that all such articles were made from pure silver. Two early products were metal "soy frames" and cruet frames," used for holding cruets–which are cut glass bottles that usually hold oil, vinegar, soy [sauce], liquor, etc. for use at the dining table.

The section titled "Sale room values of Old Sheffield Plate" states (p. 184) that as of 1912: "Cruet and liquor frames are not in request, but small soy frames from the Adam period [ca. 1770-1790] are much sought after."

A complete list of Old Sheffield plated wares manufactured by the firm of Watson & Bradbury between the years 1788 and 1815, with original descriptions taken from the company's pattern book, includes (p. 196-97): "Cruet frames"–485 different patterns. Note: this is the single most popular type of pattern / item. "Soy frames"–84 different patterns." This one firm made a total of 570 different patterns of soy frames and glass cruets."

The section titled "Cruet frames and soy frames" (p. 271-73), which contains various superb illustrations, states: "The soy frames and cruet frames–with their many combinations and varieties of patterns, are sufficiently illustrated here to give a very fair general idea of the different fashions and requirements of this branch of the industry. The name soy is borrowed from the French, and signifies sauce." (p. 271).

Black-and-white illustrations show: (1) A punching and piercing machine, with a "soy frame base" after piercing (p. 119; various spaces were pierced on its edge). (2) "Small 2-bottle Soy Frame, by D. Holy, Wilkinson & Co. Date 1787." (3) "Small 3-bottle Soy Frame, with green bottles ornamented with gold, by N. Smith & Co. Date 1803." (4) "Round 6-bottle Soy Frame, by Richard Morton. Date 1776." Note: This is the earliest date seen (Sept. 2003) for a soy frame or soy cruets. (5) "7-bottle Oval Soy or Cruet Frame, by T. Law & Co. Date 1792." (6) "3-bottle Cruet or Soy Frame Combination, with plated Mustard Pot, by N. Smith & Co. Date 1789." (p. 271-73). (7) "Illustrated designs [two] from catalogues, about 1778. The Soy Frames. The property of T. Bradbury & Sons" (p. 404). Address: Sheffield, England.

154. Day, G.E. 1912. The professor of animal husbandry and farm superintendent. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 37:141-50. For the year 1911. See p. 145-46.

• ***Summary:*** The section titled "Soya bean meal vs. bran" (p. 145-46) states: "In this test [using 11 dairy cows] we find that Soya Bean Meal gave a result almost identical with Cottonseed Meal, and demonstrated the fact that Soya Bean Meal is equal in feeding value to at least twice its weight of bran." A previous article states that this is defatted soy bean meal, containing 2.1% crude fat. Address: B.S.A., Prof. of Animal Husbandry, Guelph, Ontario, Canada.

155. Harcourt, R. 1912. Professor of chemistry. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 37:67-86. For the year 1911. See p. 69-71.
• ***Summary:*** In the section titled "Cattle feeds," a table titled "Composition of various kinds of cattle feed analysed" (p. 70) lists 16 different feeds, including two soy products: Soya Bean, coarse (41.5% crude protein, 2.17% crude fat, 8.98% moisture, etc.). Soya Bean, fine (41.07% crude protein, 2.15% crude fat, 10.41% moisture, etc.). The text continues: "The Soy Bean meal is a comparatively new feed in this country, and it is interesting to note that it contains a very high percentage of crude protein, in fact if we except Cotton Seed meal we have not other food that is comparable with it in this respect."

Note: The above table shows cotton seed meal to contain 35.5–38.2% crude protein, and 7.04 -8.09% moisture. Thus it contains less protein than soy bean meal. Address: Guelph, Ontario.

156. Kawakami, Kiyoshi Karl. 1912. American-Japanese relations: An inside view of Japan's policies and purposes (Continued–Document part II). New York, Chicago, Toronto, London and Edinburgh: Fleming H. Revell Co. 370 p.
• ***Summary:*** Continued: Book III (p. 285+): The immigration question. 18. Japanese immigration before the exclusion agreement. 19. Denis Kearnyism once more–I. 20. Denis Kearnyism once more–II. 21. Japanese immigration after the exclusion agreement. 22. The Japanese in California. 23. The naturalization of Japanese.

Chronology of Japanese in California, and anti-Japanese activities. Most of this chronology is summarized from Kawakami (1912), but key events after 1912 have been added from other reliable sources.

1790 March 26–Naturalization Act of 1790 provides the first rules to be followed by the U.S. in granting citizenship. It limits naturalization to aliens who are "free white persons" and thus leaves out slaves, native Americans, indentured servants, free African-Americans, and later Asians.

1866–The first Japanese immigrants enter the USA, 7 in number vs. 278,916 European immigrants the same year. From 1866 and 1885 the peak number of Japanese immigrants to the USA is 78 in 1871, compared with 648,000 European immigrants in 1882.

1882 May 6–Chinese Exclusion Act, barring Chinese immigration, is passed by Congress.

1884–Amendments to the 1882 Exclusion Act tightened the provisions that allowed previous immigrants to leave and return, and clarified that the law applied to ethnic Chinese regardless of their country of origin. This facilitated the introduction of Japanese labor into California. Large landowners in California tried to encourage Japanese immigration by offering alluring terms.

1886–Japanese immigration to the USA begins to rise. From 1886 to 1898 the number of Japanese immigrants rose from 194 to 2,230.

1890–The U.S. census reports 2,039 Japanese residents in the U.S., including 1,147 in California, mostly student-laborers in San Francisco.

1892 May–The first anti-Japanese movement on American begins in San Francisco, led by local three newspapers: *Morning Call, San Francisco Examiner,* and *San Francisco Bulletin.* It culminated on 10 June 1893 in the San Francisco Board of Education resolution relegating Japanese students to the segregated Chinese school. After intervention by the Japanese consul, the resolution was soon rescinded, ending this early chapter of anti-Japanese agitation.

1899–Japanese immigration figures jump to 12,635 (still insignificant compared with 297,000 European immigrants) for two reasons: (1) This is the first year that Japanese immigration to Hawaii is included in immigration statistics to the USA. In fact, more than half of the total Japanese immigrants stayed in Hawaii. (2) Western U.S. railroads, finding that Japanese made excellent section workers, used every possible means to attract them to the USA.

1900 April 30–The Organic Act is signed by President McKinley, incorporating Hawaii as a territory of the United States. The act went into effect on June 14, after which date contract labor was no longer legal. As a result, more than 8,000 laborers took part in 20 strikes within a month, calling for higher wages, reduced working hours, and hiring of Japanese overseers.

1900–The U.S. census reports 24,326 Japanese / Nikkei in the U.S., with 10,151 living in California and 1,781 in San Francisco.

1900–The first anti-Japanese protest rally in California takes place in San Francisco, instigated by local labor groups and led by Mayor James D. Phelan, who later became State Senator. In response, the Japanese Deliberative Council of America is formed.

1905 May 14–The Asiatic Exclusion League is formed in San Francisco, marking the official beginning of the organized anti-Japanese movement. Among those attending the first meeting were labor leaders (and European immigrants) Patrick Henry McCarthy and Olaf A. Tveitmoe of the Building Trades Council of San Francisco and Andrew Furuseth and Walter McCarthy of the Sailor's Union. Tveitmoe was named the first president of the organization.

1906 April 18–The Great Earthquake and Fire devastates San Francisco. Japanese enclaves in Chinatown and South of Market are devastated but South Park and Western Addition survives and thrives. The Japanese government contributes $246,000 to the City of San Francisco for earthquake relief, more than all other foreign

nations combined. The Japanese community relocates to the present Japantown *(Nihonjin Machi, Nihonmachi)*–which celebrated its 100th anniversary in 2006 as the first and oldest Japanese community in the continental United States.

1906–The Japanese population of the United States (incl. Hawaii) first tops 75,000.

1906 Dec. 23–A mass meeting is held in Walton Hall, San Francisco, to demonstrate the animosity of the laboring class against the Japanese. It is presided over by Olaf A. Tveitmoe.

1907–Japanese immigration to the USA (Hawaii and mainland) peaks at 30,226 (compared with 1.199 million European immigrants). Of this total, 20,865 (69%) went to Hawaii, 3,691 to California, 3,226 to Washington state, and 447 to Oregon. Statistics show that less than one-tenth of 1% of these Japanese immigrants ever became paupers or public charges. They worked hard in the following fields (1906): Professional, skilled, farmers, farm laborers, merchants, household servants. This large immigration took place when Japanese immigrated *en masse* from the sugar plantations of Hawaii, where the wages were less than half those paid to farm laborers on the Pacific Coast. The great sugar interests of Hawaii tried every means to slow the migration without, of course, increasing wages (p. 301).

1907 Feb. 18–U.S. Congress approves amending existing immigration laws–to go into effect in Sept. 1907; this enables the president to take action. 1907 March 14–President Theodore Roosevelt issues an executive order stopping the migration of Japanese laborers from Hawaii and Mexico.

1907 summer–Governments of Japan and the USA enter into an understanding ("Gentleman's Agreement) to prohibit the immigration of Japanese laborers to the USA–called "the exclusion agreement of 1907." The various actions of 1907 ended Japanese labor immigration to the USA and put labor contractors out of business. This measure was forced upon the administration of Theodore Roosevelt; in his message to Congress in 1906 he "eulogized the Japanese in the most glowing terms, and went so far as to urge that the Japanese should be naturalized" (p. 300). But the united pressure from the Hawaiian sugar growers, Pacific Coast labor unions and newspapers "proved so successful that the government at Washington was obliged to meet their demands" (p. 301).

1907–Frequent riots in San Francisco protest the presence of Japanese. Anti-Japanese riots and demonstrations are also reported in nearby Berkeley and Oakland and in Vancouver, BC, Canada–where Japanese laborers were "mobbed and their houses and stores attacked and burned on 'British soil.'" Note: As early as 1907, the word "unassimilable" was being applied to both Japanese and Chinese immigrants on the west coast of the United States by Caucasian writers (see *The Chautauquan*, Nov. 1907, p. 317).

1908–The Japanese population of the United States first tops 100,000. But by 1910 it had fallen to less than 90,000.

1908 Feb. 4–The Japanese Association of America is organized in San Francisco. It replaces the disbanded United Japanese Deliberative Council of America (founded in 1900), which had been plagued by financial and other problems.

1909 early–The California legislature approves an appropriation of $10,000 to be utilized for investigating the conditions of the Japanese in that state. The duty of directing the investigation naturally devolved upon the State Commissioner of Labor Statistics, Mr. John D. Mackenzie. The work was begun on April 15, 1909, with the appointment of 9 special agents," 8 men and one women, all white Americans. "There were no Japanese or other aliens employed in any capacity. To this force were added for the office work two expert statisticians and two stenographers." In early 1910, Mr. Mackenzie submitted to the governor of California (Gov. James Gillett, 1907-1911) a 78-page report (p. 343-44). Mackenzie recommends that Japanese should be admitted to California. He even contends that Japanese laborers are, in some respects, more desirable than their white counterparts. He sets forth this proposition deliberately, systematically, logically and in detail, supporting it with a wealth of statistical evidence (p. 343-47).

1913–The California State Legislature enacts the Heney-Webb Alien Land Act. This Act forbids property ownership by "aliens ineligible for citizenship" (at the time, immigrants from Asia were not permitted to become naturalized citizens). This restriction applies almost exclusively to Japanese immigrants and remains in effect until 1952.

1915–The Hearst newspaper launches its "Yellow Peril" campaign with sensational headlines and editorial series fueling anti-Japanese hostility.

1916–*The Passing of the Great Race*, by Madison Grant is published and becomes very influential. He is a eugenicist and advocates the racial hygiene theory. He data purports to show the superiority of Northern European races.

1921–Emergency Quota Act restricts Asian immigration to a trickle.

1922 Nov. 13–Supreme Court decision in Takao Ozawa v. United States finds that Ozawa, a Japanese man, is ineligible for U.S. naturalization and citizenship because he is not "white." Only Caucasians are considered white. Japanese are considered members of an "unassimilable race" [not capable of being assimilated].

1924–Immigration of Act of 1924 is passed by Congress. It includes the Asian Exclusion Act, which prevents Asians (who are deemed to be of an "undesirable race") from immigrating to the U.S.

1952–Immigration and Nationality Act (also known as McCarran-Walter Act) abolishes all previous racial restrictions but retains a quota system.

1965–Immigration and Nationality Services Act greatly opens U.S. doors to immigration by abolishing the national origin quotas that had been in place since 1924

Also discusses: Number and occupations of Japanese in California on 1 Jan. 1910. The annual report of the Commissioner-General of Immigration (p. 359). The four Japanese consular districts and the "consular census" in the USA: Seattle [Washington], San Francisco [California], Chicago [Illinois], New York (p. 359-61). Dr. Takamine (p. 357). It is time that the United States grant citizenship to qualified Japanese (the book's main point, p. 366). Address: Japan.

157. Nitragin Co. (The). 1912. Nitrogen made on the farm. Milwaukee, Wisconsin. 12 p. [1 ref]
• ***Summary:*** Nobbe and Hiltner registered the name Nitragene (pronounced NAI-tra-gene) all over the world as a trademark. It was registered in the United States Dec. 6, 1898, as No. 32,212. Initially Nitragin was sold mostly in Europe. It "was not for a few years marketed in the United States and Canada, but these governments undertook the introduction of the pure culture method of soil inoculation on their own account, in order to encourage this safer, easier, and more practical method. The United States Department of Agriculture distributed these organisms in the dry or dormant form on bits of cotton. Thus practically the whole world accepted, endorsed and adopted the Nobbe-Hiltner inoculation method. However many disappointments followed these early experiments... The cultures sent out by the USDA were found practically useless." There were basic problems with the original product and many farmers lost confidence in artificial cultures. Then the so-called "new Nitragin" was introduced to America in about 1909 by the German-American Nitragin Co. of Milwaukee, Wisconsin, under the direct supervision of Dr. M.O. Reiche, soil expert, bacteriologist, and former student and assistant to Dr. Hiltner. The new product was more effective. Photos show: "Healthy roots of beans showing germ clusters or 'nodules.'" Roots of sickly bean plants. Soy is not mentioned. Address: Milwaukee, Wisconsin.

158. Zavitz, C.A. 1912. The professor of field husbandry and director of field experiments. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 37:171-248. For the year 1911. See p. 214-15.
• ***Summary:*** This report is written "To the President of the Ontario Agricultural College." The section titled "Varieties of soy beans" (p. 214-15) states: "During recent years a considerable interest has been taken in this crop in England, in the United States, and in Canada... Fully thirty varieties have been under experiment at the College, but only a few of these ripened their seed.

"In 1911, there were in all nine varieties and two selections of Soy beans under experiment at the College. Owing to the very unfavorable season, however, the results were comparatively low. The highest yields in pounds of grain per acre were produced by the Habara [Habaro], 1005; Chernie, 961; and Buckshot, 675... The Early Yellow Soy bean... has proven to be one of the best in a series of experiments at the College when maturity and yield per acre are taken into consideration. The Early Yellow Soy bean has given an average yield of 14.5 bushels per acre for the sixteen years during which it has been grown." Address: B.S.A., Prof. of Field Husbandry, Guelph, Ontario.

159. Zavitz, C.A. 1912. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 33:13-42. For the year 1911. See p. 15, 23, 40.
• ***Summary:*** A table titled "List of experiments for 1911" (p. 15), under "Grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots."

In the section on Grain crops, the subsection titled "Soy beans" (p. 23) notes that nearly all of the soy beans tested at the O.A.C. "have required too long a season of growth to prove satisfactory in this climate. A few of the varieties, however, usually mature the seed and have proven worthy of further investigation. Two of the earliest varieties were distributed for co-operative experiments in 1911. The demand, however, for this experiment was light, and the meagre results obtained do not furnish sufficient material for presentation in a tabulated form. The Early Yellow variety made the best record in Ontario in 1911. This variety has proven the best at the College over a series of years. A selection from the Early Yellow variety, however, which has been made at the College, is promising and may be introduced in the co-operative work in the near future." Address: Prof. of Field Husbandry, O.A.C. [Ontario Agricultural College], Guelph [Ontario, Canada].

160. Craick, W.A. 1913. Prof. Zavitz and his work. *Farmer's Magazine (Toronto, Canada)* 5(6):19-22. April.
• ***Summary:*** A few years ago, when the customary program of lectures before farmer's institutes was being organized, Prof. Zavitz of the Ontario Agricultural College, asked to have scheduled in his part of the program an opportunity for the farmers to ask him questions about crop production. "It was an innovation, but it caught on. At meeting after meeting the set addresses were passed over in favor of the novelty and the farmers got the Professor going on all sorts of practical subjects..." Prof. Zavitz trusted farmers. "This direct questioning became extremely popular among the farmers, who gained by this means a great deal of

information and advice which would not otherwise have come out."

This example gives a good introduction to the Professor of Farm Husbandry at Guelph. His knowledge is practical. "He sheds the character of the lecturer when he gets among his good friends the farmers, and adopts that if the conversational and friendly adviser. In the summer they follow him out to his experimental plots like a flock of sheep, listen eagerly to his explanation..., and even forget that it is raining, so entertaining is his subject."

"This little bright-eyed man with his pointed beard, whose smile is so contagious, has been doing things at Guelph for a good many years." He was born in the summer of 1863 at Locust Grove Farm, Coldstream, Middlesex County. Discusses his work with barley and oats, and the co-operative experimental work he has been instrumental in organizing.

His work has been sufficiently successful to bring him to the attention of the agricultural authorities in the United States. Several years ago the USDA invited him to conduct similar work near Washington, DC, but "he declined because he felt that to forsake his experiments at Guelph and start all over again would be to undo his lifework. At the same time he has not hesitated to assist various state departments to establish co-operative schemes similar to that in Ontario.

"Much travel, a great deal of talking, and an endless stream of correspondence are all incidental to the Professor's duties. During the winter months he jumps around from convention to convention, exhibition to exhibition and meeting to meeting, and everywhere he is made heartily welcome. In summer he has his hands full with visitors at the College and summer courses." His "correspondence would appal even a hardened business man. True he has four excellent assistants and three stenographers to help him, but none the less the burden of attending to the requests for information and advice which pour in on him from day to day, especially in the spring, is a heavy one."

161. Holbrooks Limited. 1913. Holbrooks Worcestershire Sauce (Ad). *Toronto Daily Star (Canada)*. June 9. p. 8.
• ***Summary:*** "It's made in the largest Worcestershire Sauce factory. Imported–Absolutely!! Business founded 1798." Address: Birmingham and Stourport, Worcestershire, England.

162. Coville, Frederick V. 1913. The agricultural utilization of acid lands by means of acid tolerant crops. *USDA Bulletin* No. 6. 13 p. Sept. 19. p. See p. 9-11. [3 ref]
• ***Summary:*** The section titled "Leguminous plants for acid soils" states that these plants "supply the nitrogenous green manures which are necessary for the maintenance of soil fertility under most agricultural conditions... It is admitted that in acid-land agricultural red clover, the ordinary green-manure crop, is not available for this purpose. What, then, are the leguminous plants which will produce in an acid soil a heavy growth of tops equal in value to red clover for plowing under as green manure? The answer is, cowpea and hairy vetch. Crimson clover, soy bean, lupine, and serradella are also useful under certain conditions."

The following subsection titled "Soy bean" states: The soy bean is of much more recent introduction into the United States than the cowpea. In its tolerance of acidity the soy bean probably equals the cowpea, and it has two points of superiority. It grows farther north and its yield of seed is much greater, often being as high as 30 bushels per acre. Some of the varieties have been grown with success as far north as New Hampshire, Ontario [Canada], and Wisconsin. The seed of the soy bean has one remarkable characteristic. It contains no starch, but about 35 per cent of nitrogenous matter."

The writer suggests that under certain economic conditions a complete system of acid land agriculture is practicable and desirable. He points out that soil acidity may be beneficial in the control of certain fungus diseases of some of the cultivated plants.

Note: Liming the soil used to be called (1780-1800 in England) "chalking" the land. Address: Botanist in Charge of Economic and Systematic Botany, Bureau of Plant Industry.

163. Clark, George Harold; Malte, M. Oscar. 1913. Fodder and pasture plants. Ottawa, Canada: Minister of Agriculture. 143 p. + 27 unpaginated color plates. See p. 134-35. Illust. Index. 26 cm.
• ***Summary:*** The section titled "Soy or soja bean *(Glycine hispida* Maxim.)" (p. 134-35) has the following contents: Botanical description. Geographical description. Agricultural value. Cultural conditions. Varieties. Fodder Seed growing. Quality of seed.

The soy bean variety Medium Green, which gives a high yield of both hay and seeds, is best suited to Canada. "The plant got its name from Soy, a product obtained by a long and complicated fermentation of a mixture of cooked Soy Beans, ground wheat and steamed rice or barley, to which later is added water and salt. Soy is the principal constituent of Worcester and other sharp sauces." Concerning fodder: "The hay is of high nutritional value if the crop is cut at the proper stage. This is when the pods begin to develop. If they are advanced, the hay will be woody and unpalatable and the leaves, which constitute the most nutritious part, will be shattered. From one and a half to two bushels of seed to the acre are required when intended for hay."

The Preface notes that the authors are greatly indebted to Leonard S. Klinck, B.S.A., Professor of Field Husbandry at Macdonald College, Quebec, who gave valuable

comments, and to C.A. Zavitz, B.S.A., Professor of Field Husbandry at the Ontario Agricultural College at Guelph, who has given the authors much valuable information on fodder and pasture plants that are of interest in Ontario province.

George Clark was born in 1872. Malte Oscar Malte lived 1880-1933. Address: 1. B.S.A.; 2. Ph.D. Both: Canada.

164. Zavitz, C.A. 1913. Care and management of land used for experiments with farm crops. *Proceedings of the American Society of Agronomy* 4:122-26. For the year 1912. Presented at the Fifth Annual Meeting, Atlanta, Georgia, Nov. 1912.

• ***Summary:*** When carrying out field experiments, proper care and management of the land is very important. The following issues are discussed: Underdraining the land, cultivation of the soil, rotation of crops, and manuring the land. In Ontario a four-year rotation is recommended with a leguminous pasture crop in the fourth year. This pasture is produced by sowing in the spring a mixture of oats, Early Amber sorghum, and common red clover. Soy is not mentioned. Commercial [chemical] fertilizers are not used. "We manure the land once every four years with farmyard manure, at the rate of twenty tons per acre, which would be equivalent to about twelve good-sized loads.

The last section, titled "The value of the coöperation of the farmers in the application of the results of experiments" begins: "It will be seen that I have strongly emphasized the conducting of experiments in such a way that they will appeal directly to the people for whom they have been conducted." In June of each year, some 25,000 farmers visit the college. On various days throughout the month many interesting talks and discussions take place. "This close sympathy between the experiment station and the farmer is also shown through the system of coöperative experiments which are conducted throughout Ontario. This work was started in 1886, in which year there were twelve experimenters. In the following year the number increased to sixty, and in the next year to ninety. This number has gradually increased until at present there are upwards of five thousand (5,000) Ontario farmers conducting experiments on their own farms. These coöperative experiments are all conducted with material and according to instructions, furnished by the college through the medium of the Ontario Agricultural and Experimental Union. Through these and other agencies the principal farm crops of Ontario have actually been increasing in yields per acre during recent years."

Note: Page 2 of these proceedings, titled "Officers," shows that C.A. Zavitz was second vice-president of the society in 1910, moving up to first vice-president in 1911. Address: Ontario Agricultural College, Guelph, Canada.

165. Zavitz, C.A. 1913. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 34:13-38. For the year 1912. See p. 15, 18, 22.

• ***Summary:*** Prof. Zavitz begins: "As Director of the committee on agricultural experiments... I wish to express my appreciation of the work and the assistance given by the other members of the committee, viz., W.J. Squirrell, A.W. Mason, C.R. Klinck, and A.E. Whiteside. Not many people realize the large amount of work necessary in successfully conducting an extensive system of co-operative work..." (p. 13).

A table listing the co-operative experiments in Agriculture conducted throughout Ontario in 1912 (p. 15), under "Grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots."

In the section on Grain crops, a large table (p. 18) shows that 2 tests were conducted on "Soy beans." Early Yellow (comparative value 100), yielded 1.33 tons/acre of straw and 18.13 bu/acre (1,088 lb/acre) of grain. Brown (C.V. 76), yielded 0.84 tons/acre of straw and 13.49 bu/acre (810 lb/acre) of grain.

The subsection titled "Soy beans" (p. 22) states: "Of the named varieties which have been grown the Early Yellow has proven to be one of the best... A selection from the Early Yellow variety, which has been made at the College, is giving promising results, and is likely to be superior to the original variety." Address: Prof. of Field Husbandry, O.A.C. [Ontario Agricultural College], Guelph [Ontario, Canada].

166. Douglas (J.M.) & Co. 1914. Even if you had never tasted it, you could know that Lea & Perrins' is the best Worcestershire sauce in the world (Ad). *Toronto Daily Star (Canada).* May 2. p. 4.

• ***Summary:*** The upper illustration shows a black maid looking in on a group of diners seated around a table. The lower illustration shows a bottle of Lea & Perrins' Worcestershire Sauce. To the right of the bottle, the following is written in a rectangle: The white writing on the red label indicates the Original and Genuine Worcestershire Sauce. In the middle of the rectangle is the "Lea & Perrins" signature. Address: Canadian agents, Montreal [Quebec, Canada].

167. Piper, Charles V. 1914. Forage plants and their culture. New York, NY: The Macmillan Co. xxi + 618 p. Aug. See p. 513-38. Illust. Index. 20 cm. Series: The Rural Text-Book Series, ed. by L.H. Bailey. Reprinted with new publication date but no changes in 1916, 1919, and 1921. [9 ref]

• ***Summary:*** Contents: 1. Introduction. 2. Preservation of forage. 3. Choice of forage crops... [chapters an various grasses (incl. Velvet grass *{Holcus lunatus}),* sorghums, and millets]... 6. The statistics of forage crops ("In the same way as the straw of cowpeas, Canada and garden peas, soybeans

and other leguminous seed crops has also a considerable value as forage," p. 114)... 15. Alfalfa. 16. Red clover. 17. Other clovers–Alsike, Hungarian, White and Sweet. 18. Crimson clover and other annuals. 19. Peas and pea-like plants (incl. Chick-pea *{Cicer arietinum}* and Grass-pea, vetchling or chickling vetch *{Lathyrus sativus}).* 20. Vetches and vetch-like plants: Common vetch *(Vicia sativa),* hairy vetch *(Vicia villosa),* narrow-leaved vetch *(Vicia angustifolia),* purple vetch *(Vicia atropurpurea),* wooly-pod vetch *(Vicia dasycarpa),* scarlet vetch *(Vicia fulgens),* ervil or black bitter vetch *(Vicia ervilia),* narbonne vetch *(Vicia narbonnensis),* horse bean *(Vicia faba),* bird or tufted vetch *(Vicia cracca),* tangier pea *(Lathyrus tingitanus),* flat-podded vetchling *(Lathyrus cicera),* ochrus *(Lathyrus ochrus),* fenugreek *(Trigonella foenum-græcum),* lupines *(Lupinus* spp.), serradella *(Ornithopus sativus),* square podded pea *(Lotus tetragonolobus).*

21. Cowpeas. 22. Soybeans. 23. Other hot-season annual legumes: Lespedeza or Japan clover, Florida velvet bean *(Stizolobium deeringianum)* [later renamed simply "Velvet bean" *(Mucuna pruriens)],* peanut *(Arachis hypogæa),* Florida beggarweed, the jack bean *(Canavalia ensiformis.* "Owing to confusion with the similar species cultivated in Japan, China, and India, it has also been called the sword bean and the knife bean, but those names properly belong to the Asiatic species *{Canavalia gladiata},* used principally as a vegetable), mung bean *(Phaseolus aureus),* urd *(Phaseolus mungo),* moth bean *(Phaseolus aconitifolius),* adzuki bean *(Phaseolus angularis),* bonavist or hyacinth bean *(Dolichos lablab),* guar *(Cyamopsis tetragonoloba).*

Note 1. This is the earliest English-language document seen (Aug. 2007) that uses the term "jack bean" to refer to *Canavalia ensiformis.* Note 2. This is the earliest English-language document seen (Aug. 2007) that uses the term "sword bean" or the term "knife bean" to refer to *Canavalia gladiata.*

24. Miscellaneous perennial legumes: Sainfoin *(Onobrychis cicioefolia),* sulla or Spanish sainfoin *(Hedysarum coronarium),* kudzu *(Pueraria thunbergiana),* flat pea *(Lathyrus silvestris* var. *wagneri),* kidney vetch *(Anthyllis vulneraria),* goat's rue *(Galega officinalis),* bird's foot trefoil *(Lotus corniculatus), Astragalus falcatus,* furze *(Ulex europoeus).*

25. Miscellaneous herbs used as a forage (incl. Sunflower *{Helianthus annuus}).* 26. Root crops and other comparable forages (incl. rape *{Brassica napus},* Jerusalem artichoke, chufa *{Cyperus esculentus},* and cassava).

Contents of Chap. 22–Soybeans (p. 513-538): Introduction. Agricultural history. Botany. Description. Soil adaptations. Climatic adaptations. Importance. Desirable characters in soybean varieties. Commercial varieties. Preparation of soil and cultivation. Rate of seeding. Time of seeding. Method of seeding. Depth of planting. Inoculation. Life period. Time to cut for hay. Hay yields. Fertilizers. Soybean mixtures: Soybeans and corn, soybeans and cowpeas, soybeans and sorghums, soybeans and Johnson-grass, soybeans and millet. Silage. Rotations. Feeding value of soybean hay. Seed-production. Pollination. Seed yield. Seeds. Pests. Breeding. Soybeans and cowpeas compared.

"The soybean is the most productive as regards seed of any legume adapted to temperate climates... The soybean was first cultivated in the United States in 1829, but it apparently attracted but little attention until 1854, when two varieties were brought back from Japan by the Perry expedition. Other varieties were introduced from time to time, among them the Mammoth, which was introduced previous to 1882. It is largely due to the introduction of this variety that the soybean has become an important crop in the United States, as a very large percentage of the acreage is still planted to this variety. Between the years 1900 and 1910, the United States Department of Agriculture introduced about 250 varieties from all portions of the Orient" (p. 513-14).

"At the present time about fifteen varieties of soybeans are handled commercially by seedsmen, the most important of which are Mammoth, Hollybrook, Haberlandt, Medium Yellow, Guelph, Ito San, Wilson and Peking." A fairly detailed description of each variety is given (p. 519).

Pollination (p. 533): "The soybean flower is completely self-fertile, bagged plants setting pods as perfectly as those exposed. The flowers are much visited by bees, which seek principally the pollen, as the soybean flower secretes but little nectar. Pollination occurs even before the flower opens, but nevertheless occasional cross-pollinations occur where different varieties are grown in close proximity. Such natural hybrids can often be detected by the fact that the seeds of heterozygote plants present queer combinations of color, such as smoky green, smoky yellow, brown and yellow and black banded. In the course of varietal trials at Arlington Farm, Virginia, extending over five years, many such natural hybrids were secured, and similar crosses occurred at the Kansas Experiment Station."

Concerning seed yield (p. 533): "When grown for seed, the best varieties under proper culture yield from 30 to 40 bushels of seed to the acre. A maximum yield of 50 bushels to the acre has been reported from North Carolina." A table (p. 534) shows the yields reported for 10 varieties from Arlington Farm, 7 other U.S. states, and Guelph, Ontario, Canada. The varieties are: Mammoth, Hollybrook, Guelph, Ito San, Haberlandt, Medium Yellow, Wilson, Peking, Ebony, and Chernie. The states are Tennessee, Kentucky, Delaware, Indiana, Ohio, Arkansas, and Virginia.

The section titled seeds (p. 534-35) notes: "Soybean seeds do not retain their viability well, and it is not advisable to sow seed two years old without previously testing. Unless care is exercised in properly curing and storing, soybean seeds are apt to heat and thus quickly have

their viability destroyed. A small percentage of the seed will under favorable conditions retain its viability four or five years, and this has been found to vary according to variety, as shown in the table:"

This table gives the viability of the seeds of 12 soybean varieties, grouped by color, in approximately descending order of viability after 4 years. Those with the highest percentage viability are all black in color: Shanghai, Chernie, Baird, Fairchild, Jet, Ebony (these first 6 are black-seeded), Tashing, Guelph (green), Brownie, Ito San, Haberlandt, and Mammoth (these last 3 are straw yellow). For the variety Shanghai, 99.0% of the seeds are viable after 1 year, 93.0% after 2 years, and 43.5% after 4 years. After 1 year, the viability was greater than 90% for most varieties. After 4 years, black-seeded soybeans had by far the best viability, ranging from 4.0% to 46.5%.

Note 3. This is the earliest English-language document seen (March 2003) that uses the term "viability" to refer to germinability or germination rate.

"Pests.–Soybeans are troubled by few serious enemies. On the whole, rabbits are most troublesome, as they are extravagantly fond of the herbage, and where they are abundant soybean culture is practically impossible. At the Tennessee Experimental Substation at Jackson, rabbit injury was much reduced by using scarecrows, to each of which a lantern was hung at night.

"Rootknot caused by a nematode *(Heterodera radicicola)* often injures soybean considerably, but more damage is caused by cowpea wilt, due to *Fusarium.*

"Caterpillars sometimes eat the leaves, but the loss from such insects is seldom serious.

"On the whole it may be said that no insect or fungus pest [disease] has yet assumed any great economic importance in connection with the culture of the soybean." Illustrations (line drawings, both non-original) show: A typical soy bean plant, with a close-up of a cluster of pods (p. 514). Roots of a soybean plant, showing nodules (p. 525). A black-and-white photo (Plate VIII, facing p. 510) shows the seeds of ten soybean varieties. Address: Agrostologist in Charge of Forage Crop Investigations, Bureau of Plant Industry, USDA [Washington, DC].

168. Takamine, Jokichi. 1914. Enzymes of *Aspergillus oryzae* and the application of its amyloclastic enzyme to the fermentation industry. *Chemical News* 110:215-18. Oct. 30. [11 ref]

• ***Summary:*** Originally published in *Journal of Industrial and Engineering Chemistry* 6:824-28 (Oct., 1914).

169. Takamine, Jokichi. 1914. Enzymes of *Aspergillus oryzae* and the application of its amyloclastic enzyme to the fermentation industry. *J. of Industrial and Engineering Chemistry* 6(10):824-28. Oct. [11 ref]

• ***Summary:*** This is the first review of the early history of the application of East Asian fungal fermentations to modern industrial processing, which began in the 1880s. A principal impetus for the development of the fungal enzyme industry was the discovery that *Aspergillus oryzae*, the fungus involved in the shoyu, miso, and saké industries, produced amylases that could be used to saccharify starch in place of barley malt in the production of distilled spirits. The first commercial enzyme was Takadiastase (a white to yellowish powder rich in amylases) produced by precipitating an aqueous extract of *Aspergillus oryzae* koji with 70% v/v ethanol. The precipitate was then dehydrated with strong alcohol and pulverized.

Though *Aspergillus oryzae* plays an important role in the national economy of Japan, "its utilization in Occidental countries is singularly lacking. Calmette and Bodin's investigation on amylomyces with a view of utilizing it in the spirit industry is an isolated instance in Europe, and their process, known as the amylo-process, has been in operation in France since 1891.

"In 1891, I made an arrangement with the Distilling and Cattle Feeding Co. [popularly known as the "Whiskey Trust"], of Peoria, Illinois, and carried out on a practical scale the application of the *Aspergillus oryzae* to the American Distillery. My experiments, which ran for a couple of months on a 2,000 bushel scale at the Manhattan Distillery, were partially successful, but unfortunately the process did not attain general recognition of its merit..."

*Aspergillus oryzae* has been used in Japan for many centuries to make products such as Sake or rice beer, Soy [sauce], and Miso. In 1912 the tax on fermented sake in Japan contributed the $41,974,630 to the national treasury. "The tax on the production of Soy (Bean sauce) amounted to $2,048,141" [only about 5% as much as sake]. The total cost of all articles produced with the aid of the *Aspergillus oryzae* fungus is put at roughly $200 million.

"To the growth of *Aspergillus oryzae* on wheat bran as a culture medium I gave the convenient name of Taka-Koji and have employed it for a number of years to distinguish it from that known in Japan as Koji which is a culture on steamed rice.

"Taka-Koji is designed for a substitute for malt as an amyloclastic agent in varied fermentation and other allied industries. Its proposed use is encouraged by the fact that the cost of malt is subject to fluctuations according to the crop conditions of barley while bran is exempt from similar market conditions. Besides, the transformation of bran into Taka-Koji can be accomplished in 48 hours, while malting needs three or four times as long for completion of the process."

The author made his Taka-Koji in a revolving drum with up to 70 kg capacity. Then he ordered a drum of about 4,800 pounds capacity–the size of an 8-ton malt drum. The cylinder turned at 1 revolution per minute. This resulted in

an 83% saving in labor costs as well as a considerable saving in space. The "process promises well for furnishing a substitute for malt in alcoholic fermentation and other industries where amyloclastic enzyme is required." The process was tested by Dr. Niels Ortved, Chief Chemist of Hiram Walker & Sons of Walkerville, Ontario, Canada. In his results, which were presented in a paper at the last Congress of Applied Chemistry (held in New York), and published, he noted: "Takamine was the first to introduce the Koji process to America. As far back as 1899 he advocated the use of Koji in the distilling industry... Lately, I understand, he has succeeded in adapting a modification of the Galland-Henning malt drum system to his process. This should be a great improvement over the old floor system..."

"Taka-Diastase: An aqueous extract from the Taka-Koji can be easily made by percolation and an enzyme can be precipitated by adding alcohol to such an extent as to contain 70 per cent by volume of same in the mixture. The precipitate is dehydrated by means of strong alcohol, dried and powdered. It is a white or yellowish white powder or hygroscopic nature. It is marketed in this form for medical use under the name Taka-Diastase. Though known as an amyloclastic agent, it contains various enzymes; nevertheless, amyloclastic and proteolytic enzymes predominate." Taka-Diastase is a Koji extract whose function is to transform starch directly into glucose.

The paper closes: "The author extends his thanks to Mr. Wooyenaka for his untiring and valuable assistance and to Parke, Davis & Co. for affording every facility for carrying out the 'Drum Experiments." Address: 552 West 173rd St., New York.

170. *Guelph Daily Herald (Canada).*1914. Removal of Prof. Zavitz asked by Guelph deputation: Recent difficulty at the O.A.C. over students forming an engineering corps results in request to the government–Premier promised consideration. Nov. 5. p. 1.

• ***Summary:*** World War I is now a major issue on the OAC campus. Student activities have resulted in the formation at the college of a military organization named the engineering corps. A "great deal of sympathy for the students, who are sincere in their desire to perform their patriotic duty to their country, has been expressed in all classes of the community.

Prof. C.A. Zavitz, acting head of the college in the absence of President Creelman, is opposed to military activity and organizations because of his pacifist Quaker principles. The Liberal-Conservative Association held a meeting and drafted a resolution (whose text is given in full) asking that "the Government of the Province of Ontario be respectfully, but definitely asked to forthwith accept the resignation of Professor Zavitz as Acting President, and in the interest of patriotism and personal duty of those of service age attending the Agricultural College at Guelph as students, and the most effective evidence on the part of the Government of its loyalty and sympathy with the Empire in its present struggle. Professor Zavitz's resignation as a member of the staff of the College be at once demanded, and that not being offered that he be forthwith dismissed..."

A copy was sent to Premier Hurst, to Hon. James S. Duff (Minister of Agriculture), and to H.C. Scholfield (an ex-M.P.P.), who arranged for the deputation to meet the Premier and present their views. At the meeting, the Premier said that the students' views would be carefully considered.

Note: Many other articles on this subject appeared in this newspaper and in the *Guelph Daily Mercury* during 1914. In the end, Prof. Zavitz–who was widely admired and respected–was not asked to resign.

171. *Farmer's Advocate (Ontario, Canada).*1914. An unwarranted attack. 49(1156):1973. Nov. 19.

• ***Summary:*** It begins: "Readers who have been following the daily press, and who are familiar with the facts of the case, are very indignant over the unfair and downright mean attacks on Prof. C.A. Zavitz, of the Ontario Agricultural College.

During World War I, Charles Zavitz, a Quaker and a pacifist, was named acting president of the Ontario Agricultural College. He was sharply criticized by the local press for his pacifism during World War I. He promptly resigned, but his resignation was not accepted.

This magazine, published in London, Ontario, adds: "There is no better known Field Husbandman in America than Prof. Zavitz, who has done more for field crops in Canada than any other living experimenter. Farmers know his real value if a few of the citizens of Guelph do not." Address: London, Ontario.

172. Bosse, Sara; Watanna, Onoto. 1914. Chinese-Japanese cook book. Chicago and New York: Rand, McNally & Co. 120 p. Index. 17 cm.

• ***Summary:*** A remarkable and pioneering East-Asian cookbook. It may well be the earliest Japanese cookbook seen published in America. It is one of the earliest Chinese cookbooks published in America. The cover illustration shows a well dressed Japanese woman in a Japanese room kneeling and cooking over a brazier. Contents: Preface. Part I: Chinese recipes (12 sections, p. 9-64). Part II: Japanese recipes (7 sections, p. 74-110). List of Chinese and Japanese groceries.

The Preface begins (p. 1): "Chinese cooking in recent years has become very popular in America, and certain Japanese dishes are also in high favor. The restaurants are no longer the resort of curious idlers, intent upon studying types peculiar to Chinatown, for the Chinese restaurants have pushed their way out of Chinatown and are now found in all parts of the large cities of America." "There is no

reason why these same dishes should not be cooked and served in any American home."

Concerning shoyu, or Japanese-style soy sauce (p. 2-3): "Syou, sometimes called Soye, is similar to Worcestershire and similar European sauces. In fact, the latter are all said to be adaptations of the original Chinese syou, and most of the European sauces contain syou in their makeup. It lends a flavor to any meat dish, and is greatly esteemed by the Oriental peoples."

Note 1. This is the earliest English-language document seen (Jan. 2006) that uses the word "syou" to refer to shoyu.

Syou (soy sauce) is an ingredient in at least 55 recipes in this book, both Chinese and Japanese–starting with Chinese soups (p. 12-17). When first mentioned here it is called "syou (Chinese sauce)," but thereafter simply "syou."

"Miso paste" appears in 5 Japanese recipes: Satsuma soup ("one quarter pound of aburage {oil-fried Tofu}; one quarter pound of miso paste {soy bean and rice cheese}," p. 71-72). Uwo shiru (Fish soup) ("one pound of miso paste {bean and rice paste}; one half cupful of syou sauce," p. 73-74). Shika shiro (Pot-roasted venison) ("one cupful of syou sauce;... one quarter pound of miso paste," p. 80). Tamago bolan (Peony eggs) ("finely mashed miso," p. 91-92). Shiro uri (Stewed squash) ("syou sauce... two tablespoons of miso," p. 95).

"Aburage (oil-fried Tofu)" and regular tofu appears in Satsuma soup (p. 71, see above). Yaki zakana (Fried fish) (with "oil-fried Tofu... Note: Tofu is made from a mixture of syou bean [soy bean] and rice. It is mashed and rolled into a thin cake, and fried in oil, very much like pancakes," p. 77-78). Note 2. A poorer definition of tofu would be hard to find. Yaki udzura (Broiled quail or pigeons) ("aburage {bean cheese paste}" and "Tofu cakes," p. 79). Fried squab (with "fried Tofu," p. 81). Tamago tofu (a tofu-like custard made with eggs and syoyu sauce, but no real tofu, p. 89-90).

Bean sprouts are used in many recipes, but we are never told what type of beans are sprouted [probably mung beans]; a recipe for homemade bean sprouts (p. 109) calls for "ordinary white beans, or dried lima beans." Other interesting ingredients include: "Adzuki (purple beans)" (mentioned once in Yohan candy). Goma seeds [sesame] or goma-seed oil (mentioned 15 times). Kudzu starch (6 times, misspelled once as "kudze"). Peanut oil (at least 10 times). Seaweed (1 can of seaweed; small piece of seaweed), seaweed jelly or gelatine, or Kanton [kanten, agar] (15 times). Sweet rice [mochigome].

The authors, "Winnifred and Sara Eaton were sisters, daughters of a Chinese-born mother and an English-born father, and grew up in a large family in Montreal, Canada. Winnifred Eaton was a very successful fiction writer who, by taking on a Japanese identity, both exploited the public's craze for 'Japonica' at the time, and obscured her Chinese heritage during an age of anti-Chinese sentiment and policies. This cook book was her first collaboration with Sarah, who may have done very little of the writing. A painter, Sarah (1868-1940) lived out her life with her German artist husband, Karl Bosse, in New York. Winnifred (whose Japanese pseudonym was Onoto Watanna) lived 1879-1954, knew almost nothing about Japanese cooking. Winifred's biographer and granddaughter, Diane Birchall, says that the authors' claim in the Preface that the Chinese recipes are "... secret recipes handed down from Vo Ling, worthy descendant of a long line of noted Chinese cooks...' is just a hoax. "According to Birchall, Eaton was awful at cooking Chinese dishes" (MSU introduction and biography).

Note 3. This is the earliest document seen (Jan. 2009) concerning soy ingredients used in Japanese-style recipes, food products, or dishes outside Japan.

173. O.A.C. No. 81: New Canadian domestic soybean variety. 1914.

• ***Summary:*** Sources: Zavitz, C.A. 1914. "The professor of field husbandry and director of field experiments." *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 39:115-88. For the year 1913. See p. 162. In the section titled "Varieties of soy or soja beans," a table (p. 162) shows the average yield of nine varieties in pounds of grain per acre. In descending order of yield, they are: is O.A.C., No. 81 (831 lb/acre; it has 57.9 lb/bushel or 14.4 bu/acre), Chernie, No. 18227 (808 lb/acre)," etc. "It will be seen that one of our own selections, started from a single plant, has given the highest average yield of seed per acre. This variety has also ripened more satisfactorily than many of the other varieties. It will be seen that the weight per measured bushel of the O.A.C. No. 81 is slightly higher than that of any other variety.

Zavitz, C.A. 1917. "Results of co-operative experiments in agriculture." *Ontario Agricultural and Experimental Union, Annual Report* 38:9-33. For the year 1916. See p. 13, 18-19. Last year: "The Brown variety gave exactly one bushel per acre more than the O.A.C. No. 81. This was the first year in which the O.A.C. No. 81 was distributed for co-operative experiments. It has surpassed the Brown Soy bean in yield per acre at the College but is a little later in reaching maturity." Address: Ontario, Canada.

174. Quebec No. 537: New Canadian domestic soybean variety. 1914.

• ***Summary:*** Sources: Zavitz, C.A. 1914. "The professor of field husbandry and director of field experiments." *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 39:115-88. For the year 1913. See p. 162-63. "In 1913 seed of each of two varieties of soy beans were obtained from Professor [Leonard S.] Klinck, of the Macdonald College, Quebec. These were special strains resulting from selection at that institution, and one of them

is known as Quebec No. 92, and the other as Quebec No. 537."

Jenkins, E.H.; Hayes, H.K. 1915. "Field tests of soy beans, 1914." *Connecticut Agric. Exp. Station, Bulletin* No. 185. 17 p. Jan. See p. Table I, titled "Analyses of soy bean forage grown at Mt. Carmel field, 1914" (p. 6-7), lists 18 varieties in ascending order of days to maturity: Quebec No. 92 (104 days), Quebec No. 537 (110 days)... Page 5 states that these two early varieties are both "selections from Professor Klinck, Macdonald College, Quebec. Quebec 537 looks like an early maturing strain of Ito San."

Ladd, Culver. 1919. "Soya bean investigation." *North Dakota Agric. Exp. Station, Food Department, Paint Bulletin* 1(7):130-38. Oct. See p. 138. Table III shows that the soybean variety Quebec No. 537 was grown in 1913 and 1914 at Macdonald College, Quebec, and in 1915 and 1916 at New Jersey. The fat content (%), moisture content (%), refractive index at 25ºC, specific gravity at 15.5ºC, iodine number, and saponification number are given. Address: Quebec, Canada.

175. Quebec No. 92: New Canadian domestic soybean variety. 1914. Seed color: Yellow, hilum dark.
• ***Summary:*** Sources: Zavitz, C.A. 1914. "The professor of field husbandry and director of field experiments." *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 39:115-88. For the year 1913. See p. 162-63. "In 1913 seed of each of two varieties of soy beans were obtained from Professor [Leonard S.] Klinck, of the Macdonald College, Quebec. These were special strains resulting from selection at that institution, and one of them is known as Quebec No. 92, and the other as Quebec No. 537. The Quebec No. 92 gave 648 pounds of grain per acre which was surpassed only by two other varieties in the past year, viz., the Brown Soy bean, which gave 720 pounds, and the O.A.C. No. 81, which gave 664 pounds per acre."

Jenkins, E.H.; Hayes, H.K. 1915. "Field tests of soy beans, 1914." *Connecticut Agric. Exp. Station, Bulletin* No. 185. 17 p. Jan. See p. Table I, titled "Analyses of soy bean forage grown at Mt. Carmel field, 1914" (p. 6-7), lists 18 varieties in ascending order of days to maturity: Quebec No. 92 (104 days), Quebec No. 537 (110 days)... Page 5 states that these two early varieties are both "selections from Professor Klinck, Macdonald College, Quebec. Quebec 537 looks like an early maturing strain of Ito San."

Ladd, Culver. 1919. "Soya bean investigation." *North Dakota Agric. Exp. Station, Food Department, Paint Bulletin* 1(7):130-38. Oct. See p. 138. Table III shows that the soybean variety Quebec No. 92 was grown in 1913 at Macdonald College, Quebec, and in 1915 at New Jersey. The fat content (%), moisture content (%), refractive index at 25ºC, specific gravity at 15.5ºC, iodine number, and saponification number are given.

McRostie, G.P.; Laughland, J. 1940. "Soybeans in Ontario." *Ontario Department of Agriculture, Bulletin* No. 407. 12 p. Feb. See p. 11. Description of varieties: "Quebec No. 92. A selection at Macdonald College by Dr. L.S. Klinck. Seed yellow, large; hilum dark; plant bushy, short. An early variety adapted to shorter growing seasons of Ontario." Address: Quebec, Canada.

176. Zavitz, C.A. 1914. The professor of field husbandry and director of field experiments. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report* 39:115-88. For the year 1913. See p. 162-63, 184-85.
• ***Summary:*** In the section titled "Varieties of soy or soja beans," a table (p. 162) shows the average yield of nine varieties in pounds of grain per acre. In descending order of yield, they are: is O.A.C., No. 81 (831 lb/acre; it has 57.9 lb/bushel or 14.4 bu/acre), Chernie, No. 18227 (808 lb/acre), Buckshot, No. 17251 (732), Habara [Habaro], No. 20405 (707), Early Yellow (691), Brown (662), Ito San (629), Tsurunoko (615), Akasaya (576).

"It will be seen that one of our own selections, started from a single plant, has given the highest average yield of seed per acre. This variety has also ripened more satisfactorily than many of the other varieties. It will be seen that the weight per measured bushel of the O.A.C. No. 81 is slightly higher than that of any other variety.

"In 1913 seed of each of two varieties of soy beans were obtained from Professor [Leonard S.] Klinck, of the Macdonald College, Quebec. These were special strains resulting from selection at that institution, and one of them is known as Quebec No. 92, and the other as Quebec No. 537. The Quebec No. 92 gave 648 pounds of grain per acre which was surpassed only by two other varieties in the past year, viz., the Brown Soy bean, which gave 720 pounds, and the O.A.C. No. 81, which gave 664 pounds per acre."

The section titled "Miscellaneous leguminous crops for green fodder" (p. 184-85) begins: "In 1913, twenty-one leguminous crops were grown in the experimental department for the production of green fodder... The highest yield in tons of green crop per acre produced in 1913 were obtained from the following varieties: Grass Peas, 7.9; Ito San Soja Beans, 7.6; Hairy Vetches, 7.3; and Chernie Soy Beans, 6.9."

"Each of twelve varieties of leguminous crops have been under experiment in each of five years, and the accumulated results add to the value of the information." A table (p. 184) shows the average returns for the five year period: Habara Soy Beans, No. 20405 (Wash) 26 inches, 7.59 tons (the best yield among 12 legumes). Ito San Soja Beans, 24 inches, 6.8 tons (#2 best yield). Chernie Soy Beans, No. 18227 (Wash) 23 inches, 6.77 tons (#3 best yield). Early Yellow Soy Beans, No. 81, 24 inches, 6.15 tons (#6 best yield). Early Yellow Soy Beans, 23 inches, 5.53 tons (#7 best yield). Buckshot Soy Beans, No. 17251

(Wash) 23 inches, 5.08 tons (#8 best yield). Tsurunoko Soy Beans, 23 inches, 4.93 tons (#9 best yield). Akasaya Soy Beans, 24 inches, 4.72 tons (#10 best yield). Brown Soy Beans, 22 inches, 4.26 tons (#11 best yield).

Note 1. This is the earliest document seen (Jan. 2010) that mentions an "O.A.C." soybean variety–O.A.C. No. 81; it was developed at the Ontario Agricultural College in Guelph, Ontario, Canada.

Note 2. This is the earliest document seen (Feb. 2010) that mentions a "Quebec" soybean variety–Quebec No. 92 or Quebec No. 537; they were developed by Professor Leonard S. Klinck, at Macdonald College, McGill University, Ste.-Anne-de-Bellevue, Quebec, Canada. Address: B.S.A., Prof. of Field Husbandry, Guelph, Ontario.

177. Zavitz, C.A. 1914. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 35:12-38. For the year 1913. See p. 14, 22.

• ***Summary:*** A table listing the co-operative experiments in Agriculture conducted throughout Ontario in 1913 (p. 14), under "Grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots."

In the section on Grain crops, the subsection titled "Soy beans" (p. 22) states: "As usual an experiment was conducted over Ontario with different varieties of Soy beans in 1913. No satisfactory reports, however, were received. The Early Yellow variety is the one which has made the best all-round record at Guelph, although we have now a selection from this variety which promises to be better than any of the varieties which we have previously had under experiment." Address: Prof. of Field Husbandry, O.A.C. [Ontario Agricultural College], Guelph [Ontario, Canada].

178. Zavitz, Charles A. 1914? Military training in public schools (Leaflet). Ontario, Canada: Genesee Yearly Meeting of Friends. 1 p. Undated. 21 cm. Single sided.

• ***Summary:*** "We believe it is in the spirit of true patriotism as well as the true christianity [sic] that we protest against the introduction of 'Military Training' in our public schools. We believe it is against the wish of a vast majority of our people and, if forced upon them, will add fuel to the great unrest of these troublous times. We want physical culture for the youth and we believe such a system far better adapted to the promotion of a good physique and good health than 'Military Training' and at the same time does not incite to warlike thoughts and acts.

"We feel we are urging this matter from a pure motive, from a true patriotism, and from a duty we owe our children and our God. May it receive your earnest consideration."

Note: This was written during World War I when Charles Zavitz, as Acting dean of the Ontario Agricultural College, refused to authorize military training on campus. He offered to resign if others believed his views to be unreasonable. His resignation was not accepted. This leaflet was "Printed by direction of Genesee Yearly Meeting of Friends." Address: Clerk [Recording Secretary] of the Genessee Yearly Meeting of Friends [Ontario, Canada].

179. Jenkins, E.H.; Hayes, H.K. 1915. Field tests of soy beans, 1914. *Connecticut Agric. Exp. Station, Bulletin* No. 185. 17 p. Jan.

• ***Summary:*** Contents: Uses of soy beans: Catch crop, nitrogen-gathering green manure crop in orchards, seed crop, silage crop, for hay, as a forage and pasture for hogs. Tests made in 1914. Yield of fresh forage. Yield of dry matter. Yield of food ingredients. Period of growth. The seed. The seed yield. Feeding value. Resistance to frost and time of planting. When to plant. How to plant. Varieties to plant.

Page 3 states: "The field work connected with these tests was planned and carried out by Mr. H.K. Hayes and his assistant, Mr. Hubbell. The chemical analyses were made under the direction of the chief chemist, Mr. J.P. Street. The results have been prepared for publication by the director [E.H. Jenkins]."

The soy bean is a valuable catch crop, which can be planted if winter grain, fall or spring sown clover, or grass seed fails. It is an excellent nitrogen-gathering green manure crop in orchards. As a seed crop it is sometimes profitable, depending on the state of the market.

Varieties to plant. Hollybrook is recommended. A summary of a single year's observations of 19 varieties tested, all of which on the 28th and 29th of May, begins: "The earliest varieties–Manhattan, Medium Yellow, Quebec [two varieties] and Ito San bloomed in from 55 to 60 days and could be cut for soiling. Their average yield when the foliage was mature was 2.35 tons of dry matter."

Tables show: (1) "Analyses of soy bean forage grown at Mt. Carmel field, 1914" (p. 6-7). It lists 18 varieties in ascending order of days to maturity: Quebec No. 92 (104 days), Quebec No. 537 (110 days; both "selections from Professor [Leonard S.] Klinck, Macdonald College, Quebec. Quebec 537 looks like an early maturing strain of Ito San"), Medium Yellow, Ito San (2 entries), Kentucky, Manhattan, Ebony, Medium Green, Mongol, Mikado, Peking, O'Kute [Okute], Wilson, Arlington, Hollybrook, Swan, Morse, Cloud.

(2) "Average yield of crops named in pounds per acre" (p. 10). The crops are soy beans, fodder corn, and alfalfa. III. "Composition and yield of soy bean seed, grown at Mt. Carmel field, 1914" (p. 12, for 14 varieties. Includes weight of 100 seeds, and seed color. The variety Mongol has olive green seeds (p. 13). The highest yield was from Medium Green, 32.5 bushels/acre at 12% moisture). IV. "Composition and digestible nutrients of soy beans, cotton seed meal and linseed meal" (p. 14). A photo (front cover) shows a soy bean plant with roots. Address: 1. Ph.D.,

Director of the Station and Treasurer, New Haven, Connecticut.

180. Street, J.P.; Bailey, E.M. 1915. The carbohydrates and the enzymes of the soy bean. *J. of Industrial and Engineering Chemistry* 7(10):853-58. Oct. (Chem. Abst. 10:646). See also Zeitschrift fuer Untersuchung der Nahrungs- und Genussmittel 45:225 (1923). [12 ref]
• ***Summary:*** Contents: Introduction: "The scheme of analysis was to treat the finely ground [soy bean] meal successively with boiling 95 per cent alcohol, cold water, malt extract, 1 per cent hydrochloric acid, and 1.25 per cent sodium hydroxide, and to determine the kind and amount of carbohydrate removed by each of these solvents." Alcohol extract: Osazone formation (simple hexose sugars & sucrose. "According to Tollens, raffinose yields an osazine after about two hours"), invertin test (the enzyme invertin hydrolyzes sucrose into reducing sugars), emulsin test (emulsin hydrolyzes raffinose but without action on sucrose). Cold water extract (mucic acid). Malt extract digestion (Fehling's solution, hydrochloric acid, starch). Cell wall constituents: One per cent hydrochloric acid extract (hydrolysis of hemicelluloses, arabinose, galactose), galactan, pentosan, 1.25 per cent sodium hydroxide extract, crude cellulose, true cellulose. Distribution of pentosans and galactans. Organic acids. Undetermined substances. Summary. The enzymes of the soy bean: Introduction, amylase, sucrose, protease, oxidases, lipase, conclusions.

"In recent years various soy bean preparations have come into quite extensive use as special foods for the diabetic... as far as the writers are aware no complete separation of the different carbohydrates existing in the soy bean has been published. The form of these carbohydrates is vital to the claims of the soy bean as a valuable food for the diabetic, for starch is by no means the only carbohydrate objectionable to those afflicted with diabetes. The purpose of the present study, therefore, was to attempt a rather complete quantitative separation of these carbohydrates in the material in question."

Table I gives 19 compositional analyses of 17 different soybean varieties grown at the Connecticut Agricultural Experiment Farm over the past 2 years, calculated to a uniform moisture content of 10%. The varieties are: Ito San, Quebec, Kentucky, Medium Yellow, Manhattan, Ebony, Peking, Medium Green, Okute, Wilson, Arlington, Swan, Morse, Cloud, Mikado, Wing's Mongol, and Hollybrook. The averages are: ash 5.54%, protein (N x 6.25) 38.29%, fiber 4.64%, nitrogen-free extract (carbohydrates) 26.64%, and fat 14.89%.

The same table gives compositional analyses (conducted in the experiment station laboratory) of 7 commercial soy bean flours. The averages are: moisture 5.1%, ash 4.5%, protein 42.5%, fiber 3.7%, nitrogen-free extract (carbohydrates) 24.3%, and fat 19.9%. Note that the flour contains much more protein and fat, and considerably less of the other constituents than whole soybeans, probably due to dehulling and perhaps sifting or bolting.

Soybeans of the Hollybrook variety, grown at the station farm, were finely ground. Table II shows (and the summary states) that the nitrogen-free extract therefrom was found to contain: 4.51% total sugars, 0.50% starch, 3.14% dextrin, 4.94% pentosan, 4.86% galactan (less 0.24% due to raffinose), 3.29% cellulose, 1.44% organic acids (as citric), and 8.60% waxes, color principles, etc. "Of these constituents only the first three, *viz.*, the sugars, starch and dextrin, amounting to 8.15 per cent may be considered objectionable to a strict diabetic diet."

"Conclusion: In addition to the urease, amylase, and glucoside-splitting enzyme reported by other workers, the soy bean contains also a protease of the peptoclastic type, a peroxidase and a lipase. Negative results have been obtained for sucrase and protease of the peptonizing type. It was thought unnecessary to examine the material for urease and no attempt was made to corroborate the presence of the glucoside-splitting enzyme. The presence of an active amylase has been corroborated.

Note 1. This is the most complete quantitative separation to date of the carbohydrates in soybean seeds.

Note 2. This is the earliest document seen (July 2003) that mentions "peroxidase" (or "peroxidases") in connection with enzymes in soybeans. It is also the earliest English-language document seen (July 2003) that contains the word "peroxidase." Address: Analytical Lab., Connecticut Agric. Exp. Station, New Haven.

181. Harrison, Francis Charles. 1915. Macdonald College (McGill University). *Report of the Minister of Agriculture of the Province of Quebec* p. 45-72. For the year 1914. See p. 53. [Eng]
• ***Summary:*** The subsection titled "Cereal Husbandry Department" (p. 52-53) states: "The Cereal Husbandry Department was organized in the summer of 1905 and in the spring of the following year the first experimental plots were sown."

"The success of the department in improvement work, however, has not been confided to the isolation of improved strains of small grains. In soy beans, two exceptionally early, high-yielding pedigreed strains have been isolated and grown in tenth acre blocks for four years with gratifying results. So great has been the demand for these new strains from experiment stations, oil manufacturers and private individuals, that it has been impossible to comply with all the requests made for seed during the past year."

Note: This report was submitted on 1 July 1914 for the session 1913-14. If the soy beans have been grown *and* given good results for four years, they were probably first planted in the spring of 1910. This conclusion is confirmed by H.P. Hutchinson (1910, p. 319) who states: "By request,

Professor [Leonard S.] Klinck of Macdonald College, Quebec [Canada], kindly sent, in March 1910, a few ounces of soil in which soya beans had been grown the previous year." Other documents show that the names of the two main varieties developed by Leonard S. Klinck were Quebec No. 92 and Quebec No. 537. In the section titled "List of officers of instruction" under "School of Agriculture" (p. 69) are listed: "Leonard S. Klinck, M.S.A., Professor of Cereal Husbandry." F.C. Harrison, D.Sc., F.R.S.C., Principal and Professor of Bacteriology. Harrison's name also appears as the author on p. 72; his full name was Dr. Francis Charles St. Barbe Harrison. Address: Principal, Macdonald College [Ste-Anne-de-Bellevue, Québec, Canada].

182. Porter, Robert Percival. 1915. Japan, the new world-power: Being a detailed account of the progress and rise of the Japanese empire. London, New York, Toronto, Melbourne and Bombay: Humphrey Milford, Oxford University Press. xxiv + 789 p. Illust. Seven colored maps. Index. 23 cm. [ soy ref]

• ***Summary:*** Japan (regardless of race and colour) intervened in the Great War on the side of her ally Great Britain. They worked together successfully against Germany in the siege of Tsing-Tau in 1914 from Oct. 31 to Nov. 7.

Near the front of the book is a table of "Weights, measures and moneys, for Japan, Great Britain, and the USA."

Page 149-50: "The annual average number of immigrants from Japan is about 20,000. Roughly, half go to China and the United States of America... Since 1907 two batches of Japanese emigrants, under 2,000 in all, have gone to Brazil, the majority of which have been under contract with the Sao Paulo Government to work in the coffee plantations." There are now about 155,000 Japanese in the United States. Since a 1907 agreement between Japan and the USA, immigration of Japanese labour to the USA has been restricted. Some Japanese have tried to enter the USA by going first to Mexico. There are not more than 2,000 Japanese in Canada at present.

Page 232: In Japan: "The necessity for increased military and naval expenditure, which rose in connection with Korea in 1881, called for considerable additional revenue. Fresh military taxes were therefore levied; income-tax was introduced along with indirect imposts [taxes] on soy [sauce], tobacco, confectionery, and stamps, and the tax on *sake* was raised, augmenting the receipts to such an extent that the Government was able in 1886 to reduce the land-tax again. But following the war with China [1894-95] it became necessary to establish occupation and registration taxes, to raise again the *sake* tax, and to create a Government monopoly of leaf tobacco."

A table (p. 233) shows how the ordinary State revenue of Japan was derived in the financial years 1898-99 and 1909-10. The two main sources of revenue were: Land tax (38.4 and 85.7 million yen respectively) and liquor tax (33.0 and 91.5 million yen). By comparison, the soy tax was relatively small: 1.54 and 4.73 million yen.

Page 235-36: "The tax on liquors is levied upon (a) brewers of *shurui* (alcoholic liquor), which is divided into five classes, viz. *seishu,* or refined *sake, dakushu,* or unrefined *sake, shirozake,* or white *sake, mirin,* or sweet sake, and *shochu,* or distilled sake; (b) brewers of beer; and (c) wine and alcohol and alcoholic liquors other than sake or beer."

"Soy tax: The soy tax is levied upon manufacturers of this sauce at the rate of about 1 3/4 yen per *koku.* A tax on soy for household use was introduced in 1900, and ranges from 50 sen to 4 yen per *koku,* according to the amount manufactured. No more than 5 *koku* of soy per annum may be made for household use."

Page 240: A full-page table shows the "Budget for financial year 1911-12." The main sources of "Ordinary revenue" are liquors tax (88.7 million yen), land tax (75.1 million), customs duties (50.5 million), and tobacco monopoly (50.5 million yen). Revenue from the soy [sauce] tax is 4.6 million yen. The sugar excise is 14.7 million yen.

Page 261-62: "The upland fields, being for all intents and purposes unirrigable, are only to a very limited extent utilized for the cultivation of rice. Rotation crops are, however, raised twice a year, usually barley, 'naked barley,' and wheat as winter crops, and soya (more properly soja), sweet potatoes, and millets as summer crops." A key unit of area in agriculture is one *tan* = 0.245 acre. On [lowland] paddy fields, nationwide over the past 10 years, the average yield per *tan* is 7.913 bushels of rice and 6.668 bushels of barley, which may be considered a representative winter crop. "Upland fields, upon the same basis, produce 6.638 bushels of barley as a summer crop and 3.756 bushels of soya bean."

Another key (larger) unit of area in agriculture is one *cho* = 2.45 acre.

A table (p. 263) shows the total area, production, and yield of 17 major crops in Japan in 1897 and in 1910. Both years, the leading crop (by far) in area was rice, followed (in 1897) by barley, naked barley, wheat, and soya bean. For 1897 the three figures for soya beans were: 1,067,000 acres under cultivation, 15,381,000 bushels total production, and 14.41 bushels per acre yield. For 1910 the three figures for soya beans were: 1,137,000 acres, 18,834,000 bushels total production, and 16.56 bushels per acre yield.

Statistics for "small red bean" [azuki] are also given: For 1897 268,000 acres under cultivation, 3,069,000 bushels total production, and 11.45 bushels per acre yield. Thus, in 1897 and 1910 the production of soybeans was roughly 5 times the production of azuki beans.

Chapter 15, "Agriculture," contains a section titled "Soya bean" (p. 264-65): The soya, or soja, bean is well enough known in England as a cattle-food, but in Japan its application is by no means limited to this use. It is the basis of the Japanese sauce, soy, of which enormous quantities are brewed; of *miso,* or bean cheese [sic], used extensively for soup and in cookery in general; and of *topu* [sic, tofu], or bean curd, a cheap, highly nutritious and very popular article of diet. The residue from these manufactures is used both as fertilizer and as cattle food, or, alternatively, an oil of some value may be obtained from it. It is the principal summer crop of the upland fields, and its cultivation, which requires less fertilizer and less labour than other products, is general throughout Japan and particularly in Hokkaido. But the supply is far from equal to the demand, and a large quantity of beans and bean cake is imported from Chosen and Manchuria, the value of the present importation amounting to £3,000,000 annually.

"Among other beans the small red bean is largely cultivated, especially in Hokkaido, and is used for cakes and confectionery, and boiled with rice on occasions of ceremony. The Japanese are very fond of peas, horse-beans, and kidney-beans, which are grown as a stolen crop after rice in the paddies and just before it in the upland fields."

Page 269: "A comparison of the relative positions of human and animal labour in paddy fields and upland farms for the years 1903 and 1908 (the latest year for which figures are available) shows that the area tilled exclusively by human labour still forms a very large proportion of the total, though it tends steadily to decrease." "Manual labour is plentiful and it is chiefly by reason of its abundance that the intensive system can be carried on. Rice-growing requires, for instance, the labour of 17 men and 9 women per *cho* (2.45 acres), barley and wheat 11 men and 6 women, tobacco 25 men and 23 women, soya bean 7 men and 5 women, and so on. Farmers, in the vast majority of cases, are their own labourers, and those who may be distinguished as 'professional labourers' are a very small class."

Page 292: Sea-weeds: "Chief among the sea-weeds used as food is that known as 'Kombu' *(Laminaria).* It grows mostly on the shores of Hokkaido and the south-east of Honshiu [Honshu], and is eaten sliced into very thin shreds. ' Kanten ' is made by dissolving the weed Tengusa in water and exposing the resulting gelatinous infusion to the action of cold by night and the sun by day. Only the Chinese use it as food, however; in the West it is a substitute for gelatine, isinglass, starch, and the like. Other sea-weeds are used as paste." Address: Queen Anne's Mansions, London, England.

183. Zavitz, C.A. 1915. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 36:10-38. For the year 1914. See p. 11, 14, 19.

• ***Summary:*** Again this year, Prof. Zavitz, Director of the Committee on co-operative experiments in agriculture, has been ably assisted by Mr. A.W. Mason, Prof. W.J. Squirrell, Mr. A.E. Whiteside, and Mr. C.R. Klinck. A table listing the co-operative experiments in agriculture conducted throughout Ontario in 1914 (p. 11), under "Grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots."

In the section on "Varieties of grain crops," a large table (p. 14) shows that 3 tests were conducted on "Soy beans." Early Yellow (comparative value 100), yielded 0.49 tons/acre of straw and 30.44 bu/acre (1,826 lb/acre) of grain. Brown (C.V. 88), yielded 0.33 tons/acre of straw and 18.44 bu/acre (1,106 lb/acre) of grain.

The subsection titled "Soy beans" (p. 19) states: "The Early Yellow soy bean has proven to be one of the very best varieties which has been tested by the College, and an average of 30 bushels per acre [in three co-operative experiments] is certainly a fine yield." Address: Prof. of Field Husbandry, O.A.C. [Ontario Agricultural College], Guelph [Ontario, Canada].

184. *J. of the Board of Agriculture (London).*1916. The soya bean. 22(12):1286-87. March. Summarized in the Bulletin of the Imperial Institute. 1916. 14:293-95. [1 ref]

• ***Summary:*** "Experiments with soya bean cake tend to show that, when fed in moderation, it is a useful feeding stuff; otherwise it is apt to prove distinctly laxative. For this reason it is usually given along with undecorticated cotton cake. At present prices it is one of the cheapest feeding stuffs on the market. (See also p. 1277 of this *Journal).*" In 1912, some 188,760 tons of soya beans were imported to England, worth £1,567,960. Imports were 76,452 tons in 1913, then 71,161 tons in 1914, and 175,136 tons in 1915.

Discusses early attempts to grow soybeans in Great Britain. "Previous to 1909 a few attempts had been made to grow the crop in England, but without any success; at best, the plants grew up to flowering stage but formed no seed. About this time, with the object of securing the hardiest sorts in cultivation, the Board obtained from an experiment station in North Japan, seed of 16 varieties, together with a small quantity of soil in which the crop had been grown. These were sown at the Midland Agricultural and Dairy College and on the Cambridge University Farm. At both centres the results were similar–many of the varieties grew well, but none formed flowers. Where the Japanese soil had been applied the nodule formation was all that could be desired, but where no inoculation had taken place, no nodules were formed.

"In 1910 the Board obtained seed of several varieties from Manchuria. These were grown at the same centres as before. At the Midland College the crop grew vigorously,

but formed no seed, while at Cambridge the plants ripened a small quantity of seed. This seed was sown in 1911, but the crop made little growth, and in spite of the hot season no seed was produced.

"These results prove conclusively that the Japanese and Manchurian varieties hitherto tested cannot be relied upon to produce seed in this country. As the plant appears to be a very variable one, however, it is not impossible that a variety suited to conditions in this country may yet be produced.

"In some experiments at Wye College, Kent, with seed supplied by the Macdonald College, Quebec [Canada], well-filled pods were produced in 1910, from a variety known as "Early Tennessee," when the soil was inoculated.

"Apart from seed production the plant might have some value in this country as a forage crop. It appears to resist drought well, and is largely grown in the United States for green fodder, which appears to be liked by all classes of farm stock. In general composition the green plant resembles clover." Address: London, England.

185. Nemzek, L.P. 1916. The soya bean and soya oil. *Paint Manufacturers' Association of the U.S., Educational Bureau, Scientific Section, Circular* No. 37. 8 p. June 10. [1 ref]

• ***Summary:*** This address was presented on May 18, 1916 (during World War I) at the meeting of the Mississippi Cotton Seed Crushers' Association, New Orleans, Louisiana. Accompanied by three exhibits, it states: "As early as 1907 the Bureau interested itself in a campaign to promote the increased production of flaxseed in the United States. The rapidly increasing demand for linseed oil, by the industries in this country, indicated that we should soon face a shortage of his commodity. It remained for the 1910 flaxseed crop failure to demonstrate what a menace to the pain trade such a shortage meant. Due almost entirely to the resultant scarcity of linseed oil, the price commenced to soar during the latter part of 1910. Linseed oil reached the high price of $1.00 per gallon during 1911 and high prices prevailed throughout most of the year 1912. This condition forcibly showed the necessity for a more profound investigation of oils which might find application as substitutes for linseed in the different industries which use the oil in large quantities. In view of the fact that the work which was done toward promoting an increased production of flaxseed had been so marvelously effective, it was decided to do work of similar magnitude with miscellaneous oils."

"A series of practical paint exposure tests were begun on test fences located at Washington, D.C., in connection with the Institute of Industrial Research. The paints were exposed in May, 1911. The repainting tests were made during the latter part of 1914. This series of tests is referred to in Circular No. 30, 'Repainting Tests on Paint Oils,' issued by the Educational Bureau during December, 1914.

"Soya oil was one of the oils decided upon for the experiments largely because it was already available in quantities and could readily be imported. After looking into the matter it was found that the production of it might be developed on a satisfactory basis in this country. Soya beans were already being grown in considerable quantities, but up to that time domestic oil on a commercial scale had not been produced.

"Soya oil is crushed from the bean bearing that name. The bean is commonly referred to by the agriculturists in this country as 'Soy,' but the oil, ever since it was first imported, has been known as 'Soya Bean Oil' or 'Soya Oil.' Largely for the sake of convenience the title 'Soya Oil' has been adopted and is coming into general use. The title 'Soya' was, very likely, introduced from Manchuria, where the bean is grown in enormous quantities, and is a derivation from the Japanese 'Shoyu' or 'Soja.' 'Soya' is replacing 'Soy' when used in reference to the bean as such, even in the language of the agriculturist, and it is only a question of time when the word 'Soya' will be adopted generally."

"The first step in connection with the Bureau's endeavor consisted of the importation of soya beans from Manchuria for oil-extraction tests and the distribution of this seed, together with seed from a number of varieties already grown in this country, and the soliciting of the assistance of the State Agricultural Experiment Stations and other interested persons to urge the farmer to grow more soya beans for seed. While soya beans had been grown in this country for a good many years, this was done as a forage crop and for fertilization purposes. Only enough seed was being harvested to take care of the succeeding year's planting. The far-reaching propaganda, through the active co-operation of the State Agricultural Experiment Stations and the different Bureaus of the U.S. Department of Agriculture, was solely for the purpose of inducing the farmer to increase his population."

The Bureau reached farmers through the State Agricultural Experiment Stations. "While growing tests during 1911 and 1912 were limited to North Dakota, Minnesota, Missouri, New Jersey and Kentucky, they were extended in 1913 to every State, with the exception of a few where conditions are unfavorable from an agricultural standpoint.

"The tests were also extended to the Philippine Islands and to several places in Canada. It is noteworthy in this connection that there are at least two varieties which can be successfully matured as far north as the southern portions of Quebec.

"During 1912, forty-eight varieties were experimented with, including four imported from Manchuria. This number

was greatly increased in 1913, so that all available types would be included."

By 1916 the number of varieties had been reduced to about fifteen (see Exhibit No. 1), which were already popular: "Mammoth, Medium Yellow, Ito San, Holly Brooks [Hollybrook], Haberlandt, Peking, Wilson, Auburn, Black Eye Brow [Black Eyebrow]. Arlington, Tokio, Mikado, Virginia, Chiquita, Sable and the Yellow Manchurian bean...

"No sooner were the farmers interested in the larger growth of soya beans than they began to ask for information as to how and where the beans could be disposed of to be converted into oil.

"It was soon evident that the cotton seed mills in the South were best situated for crushing the beans. The location of the hundreds of these mills is fortunate, inasmuch as the South is naturally adapted to become the great soya bean-producing section of the country. Definite plans have not been evolved in sections where the cotton seed mills are not located, but in the northern section of the country the linseed oil mills will, very likely, crush the beans as soon as the production is large enough to warrant their going into the matter. In some sections, notably Tennessee, it was suggested that the farmers in a certain locality club together and conduct their own mill, disposing of the oil in the regular manner, and each farmer to use the cake from his crop for feeding purposes. In this way there would be returned to the land the full fertilizing values of the crop. The promoters of successful agriculture see in this a means to increase the production of soya beans, mainly because of the value which the farmer obtains by the improvement of his soil.

"During August and September, 1913, I made a trip of nearly twenty-four thousand miles, visiting most of the Agricultural Experiment Stations, to discuss matters relating to the increased production of beans for oil-crushing purposes and to determine whether or not the cotton seed mills were in a position to handle the crop without materially altering the machinery they use for the crushing of cotton seed or going to the expense of installing new equipment. Most of my time was spent in the States growing cotton and where cotton seed mills were already established."

Also discusses the oil-bearing properties of different varieties of soya beans (the oil content averages 19% and ranges from 16 to 25%), and the drying properties (see Exhibit No. 2). "During the past six or seven months there has been produced in this country in the neighborhood of one hundred thousand gallons of soya oil. The largest part of this quantity has been produced by the Elizabeth City Oil & Fertilizer Co., Winterville Cotton Oil Co. and the New Bern Cotton Oil & Fertilizer Mills."

Discusses prices at which soybeans should be purchased for profit in the oil industry, and opportunities for disposing of the oil and meal. The author points out the limited uses of soy bean oil in paints; in 1916 some 98,171,275 lb of soy bean oil were imported into the United States. The five samples of soybeans analyzed had an average iodine number of 125.8. But iodine value and drying power do not necessarily go hand in hand, although such is often the case.

"In those sections of the South where the cotton fields are infested by the boil weevil, the growers may find it to their advantage to produce soya beans on a large scale. The Alabama Cotton Seed Crushers' Association has the matter under careful consideration at the present time. The cotton crop of certain sections of that State has been seriously affected by the disastrous results which accompany the boil weevil.

"It is at once apparent that it is to the advantage of the cotton seed mills to take up the crushing of soya beans. In the first place it will help to give the mills a longer season and thereby shorten the period of idleness. This period generally varies from four to six months every year with different mills.

"The crushing of soya oil has advantages over cotton seed; it is a cleaner and easier material to handle preparatory to crushing, and the bean releases its oil as freely, at least, as cotton seed.

"Soya oil can be disposed of just as readily, at least, as cotton seed. The A.M. Parks Company, Philadelphia, commencing with the May issue of 'The Oil Miller,' advertise for domestic soya oil. This is the first ad to appear, and opens up what is likely to prove the most satisfactory outlet for the product of so many mills... In some cases the consumers who could handle it in tank cars would be able to deal direct with the crushers. The A.M. Parks Company was one of the first to import soya oil, and still imports it in large quantities. Two or three years ago the Company distributed an interesting pamphlet entitled 'Soya,' in which the commercial possibilities of the oil are referred to in some detail."

"While practical tests started in 1911 have not yet been completed, and the Bureau, in line with its adopted policy, does not intend to make a definite report until the investigation has been finished, the writer feels safe in stating that large quantities of soya oil will eventually be consumed in the manufacture of paint and varnish. Because of the inferior drying properties of soya oil as compared with linseed oil it cannot entirely displace linseed, and its use in connection with linseed oil will be limited to from 25 to 50 per cent., depending on the product in which it is used."

Note 1. This is the earliest English-language document seen (Nov. 1999) with the term "soya oil" in the title.

Note 2. This is the earliest document seen (Aug. 2004) that mentions the soybean variety Chiquita. Address: Special Technical Representative, Educational Bureau, Paint

Manufacturers' Assoc. of the United States, Philadelphia, Pennsylvania.

186. Washburn, W.F. 1916. Soya bean oil. *North Dakota Agric. Exp. Station, Bulletin* No. 118. p. 35-42. Sept.
• ***Summary:*** "At the request of the Paint Manufacturers Association this department has determined the moisture and oil content of many samples of soya beans and in addition has determined some of the constants of the oils exprest [expressed] from the different samples. These samples, representing some 45 varieties, were grown in a number of states under various climatic conditions and include the crops of 1912, 1913, and 1914."

Table 1 (p. 36-42) shows the results. The varieties are: Black Beauty or Ebony, Ito San, Mammoth, Guelph or Medium Green–Medium Early, Haberlandt, Peking, Mikado, Wilson, Sable, Holly Brook [Hollybrook] "Early," Medium Yellow, Amherst, Elton, Jet, Early Black, Sooty, Arlington, White Eye Brow [White Eyebrow], Tohas, Auburn, Brown, White Beans, Morse, Manchurian, Mercko, Ogema, Fairchild, O'Kute [Okute], Habero [Habaro], Lowrie, Austin, Chestnut, Columbia, Brindle, Meyer, Tashing, Samarow, Chernie, Manhattan, Tokio, Swan, Cloud, Virginia, Flat King, Sherwood, Early Brown, Edward, Black Eye-Brow [Black Eyebrow], Mauchu [Manchu], Green, Quebec No. 92, Quebec No. 537 [both "Quebec" varieties grown at Macdonald College, Quebec], Brownies [Brownie]. States in which the soybeans were grown include Idaho, Michigan, Montana, New Mexico, South Dakota, Utah, Wisconsin, and Quebec (Canada). It is not stated that soybeans were cultivated in North Dakota.

In West Virginia, the varieties Mammouth (Mammoth), Wilson, Holly Brook "Early," and Manchurian were cultivated. In New Mexico, the varieties Guelph or Medium Green–Medium Early, Wilson, and Manchurian were cultivated.

Note 1. This is the earliest document seen (June 2007) concerning soybeans in Montana, or the cultivation of soybeans in Montana. Ito San, Manchurian, and Quebec varieties were grown. A careful examination of the Montana Agric. Exp. Station Annual Reports from the 16th Annual Report (for the year ending June 30, 1909) to the 24th Annual Report (for the year ending June 30, 1917; published 1918) found no mention of soybeans.

Note 2. This is also the earliest document seen (Dec. 2005) concerning soybeans in Utah, or the cultivation of soybeans in Utah. This document contains the earliest date seen for soybeans in Utah, or the cultivation of soybeans in Utah (Sept. 1916). The varieties grown in Utah were Ito San and Manchurian.

Note 3. This is the earliest document seen (Aug. 2004) that mentions the soybean variety White Eyebrow. Address: M.S., Chemistry of Paints, Fargo.

187. Zavitz, C.A. 1916. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 37:12-43. For the year 1915. See p. 13, 21.
• ***Summary:*** In the section on "Spring crops, 1915," a table titled "List of experiments for 1915" (p. 13), under "Grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots."

In the section on grain crops," the subsection titled "Soy beans" (p. 21) states: "No good reports on Soy beans were received from the experimenters in the past year. The Early Yellow variety of soy bean has proved to be one of the very best. Address: Dr., Prof. of Field Husbandry, O.A.C. [Ontario Agricultural College], Guelph [Ontario, Canada].

188. Stoddard, William Leavitt. 1917. Soy: The coming bean. *Good Housekeeping* 65:77, 126-28. Sept. [4 ref]
• ***Summary:*** *"Good Housekeeping* asked the Department of Agriculture to tell its readers the truth about the soy bean. This article is the department's answer. In the [Good Housekeeping] Institute Kitchen new recipes and methods of using the soy bean were evolved and tested. These recipes will be found at the end of this article. A list of dealers in various sections of the country who carry a supply of soy beans will be mailed upon request accompanied by a stamped addressed envelope.

"'The soy bean, also called the soja bean, is a native of southeastern Asia, and has been extensively cultivated in Japan, China, and India since ancient times... The beans are there grown almost entirely for human food, being prepared for consumption in many different ways. Their flavor, however, does not commend them to Caucasian appetites and thus far they have found but small favor as human food in either Europe or America.' Thus declared a bulletin of the Department of Agriculture [Piper and Nielsen. 1909. Farmers' Bulletin 372] before the war. Less than three months after our entrance into the war–and the entrance of the United States as a nation for the first time into a food moderation and conservation campaign–this same authority stated that 'the soy bean has already reached a place of high economic importance in America and Europe as a foodstuff... During the past season the demand for seed by food manufacturers has resulted in greatly increased prices.' The soy is a coming bean if not *the* coming bean."

Sold in some American markets under the name Togo bean, the soy bean "now flourishes in an increasingly large acreage in Tennessee, North Carolina, Virginia, Maryland, Kentucky, and the southern parts of Illinois and Indiana. The earlier varieties even mature in Ontario [Canada] and our Northern states."

The American housewife probably does not care "that there is a factory in New York is making a 'vegetable milk' of soy beans; the "flour or meal [okara] which remains after the milk is manufactured is valuable both as a stock for feed

and for human consumption; that soap manufacturers and paint manufacturers are using the oil of soy beans to replace more expensive oils; and that the substitute butter makers are using the fat of the soy bean in products which thousands of consumers are using all unwitting of its true nature.

"The thing that the American housewife wants to know today is where soy beans can be bought and what are the simplest uses of them... Probably the easiest and commonest method of cooking soy beans is to use them either for soup or to bake them."

Eight recipes are given; all but two call for "soy beans." Soy-bean bread (containing 20% of the flour in the form of "soy-bean meal" [a full-fat soy flour]), Soy beans and rice (with "1 tablespoonful Worcestershire sauce"), Soy-bean loaf with tomato sauce, Vegetable roast (baked), Savory baked soy beans, Soy-bean soup, Soy-bean muffins (with "1 cupful cold baked soy-bean pulp"), and Salted soy beans (deep fried).

Photos show: (1) Muffins made with soy-bean meal. (2) Soy-bean meal ground at the Good Housekeeping Institute; the hand-turned mill and two small piles of soy beans are shown. (3) A dish of soy beans and rice. (4) A soy bean plant. (5) A vegetable roast with soy beans as an ingredient.

Note 1. Theodore Hymowitz writes (12 Feb. 1990): "I have no idea if William Leavitt Stoddard was related to Illinois soybean pioneer William Hoyt Stoddard. William Hoyt had one brother named Charles Lumas Stoddard."

Note 2. This is the 2nd earliest document seen concerning soybeans in connection with (but not yet in) Togo.

Note 3. This is the earliest English-language document seen that uses the term "Salted soy beans" to refer to soynuts. It is also the earliest document seen in any language describing the frying or deep-frying of whole soybeans to make soynuts. Previously soynuts had always been dry roasted.

Note 4. This is the earliest article on soy seen (Aug. 2002) in *Good Housekeeping* magazine.

189. Zavitz, C.A. 1917. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 38:9-33. For the year 1916. See p. 10, 13, 18-19.

• ***Summary:*** In the section on "Spring crops, 1916," a table titled "List of experiments for 1916" (p. 10), under "Grain crops" includes "Testing two varieties of Soy, Soja, or Japanese beans–2 plots."

In the section on "Varieties of farm crops," a large table (p. 13) shows that 2 tests were conducted on "Soy beans." Brown (comparative value 100), yielded 0.40 tons/acre of straw and 14.67 bu/acre (880 lb/acre) of grain. O.A.C. No. 81 (C.V. 100), yielded 0.28 tons/acre of straw and 13.67 bu/acre (820 lb/acre) of grain.

The subsection titled "Soy beans" (p. 18-19) states: "Only two good reports of experiments with Soy beans were received from the experimenters in the past year. The Brown variety gave exactly one bushel more than the O.A.C. No. 81. This was the first year in which the O.A.C. No. 81 [apparently a selection from the Early Yellow variety] was distributed for co-operative experiments. It has surpassed the Brown Soy bean in yield per acre at the College but is a little later in reaching maturity." Address: Dr., Prof. of Field Husbandry, O.A.C. [Ontario Agricultural College], Guelph [Ontario, Canada].

190. Cromer, C.O. 1918. Re: Mr. Thomas Myers of London, Ontario, Canada. Soybean production in Indiana. Letter to W.J. Morse, Scientific Assistant, Forage-Crop Investigations, Bureau of Plant Industry, Washington, DC, April 13. 2 p. Typed, with signature on letterhead.

• ***Summary:*** "I have been in communication with Mr. Thomas Myers of London, Ontario, Canada, who wrote you relative to the soybean products which he is attempting to manufacture. I might say that he and his assistant are here at the present time relative to a site for a factory for the manufacture of these products.

"Our production for seed in this state [Indiana], of course, at present is quite low. Mr. Bryant, the Field Crop Estimates Agent places the seed acreage at 545 acres and the hay acreage at 4630 acres. I feel, myself, that he is too low on the seed acreage. I also believe that with an outlet for the seed, soybeans will be more generally grown. In fact I think the acreage will increase by leaps and bounds. Up until this year seed has been selling for something like $2.50 per bushel. These gentlemen promise 5¢ a pound and can use all the seed than can be produced. I feel quite optimistic over the proposition and will be quite glad when the soybean in Indiana becomes one of the leading crops. Any information you can give me will be gratefully received."

Location: National Archives, College Park, Maryland. Record group 54–Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup–Div. of Forage Crops and Diseases. Series–Correspondence with State Agric. Exp. Stations, 1899-1923. Box 12–Illinois-Indiana. Folder–Indiana Experiment Station–#7. Address: Associate in Crops, Purdue Univ., Lafayette, Indiana.

191. *Commerce Reports [USA] (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce).*1918. Vegetable oils from the Orient to Canada. 21(112):577-78. May 13.

• ***Summary:*** "The War Trade Board announce that applications for licenses authorizing the exportation to Canada of vegetable oils imported from the Orient entering the United States at Pacific coast ports and passing through, in bond, on through export bills of lading, will be favorably

considered, provided the shipments have been purchased by Canadian concerns for consumption in Canada and they are routed to pass into Canada at Duluth, Minnesota, or at a border point west thereof."

"Applications for licenses to export such shipments should be sent to the nearest branch office of the War Trade Board or to the Bureau of Exports, War Trade Board, Washington, D.C."

Note: Although soy bean oil is not mentioned, it is clearly implied. The U.S. was importing huge amounts from "the Orient" by this date during World War I.

192. Murray, James. 1918. The farm and farm crops: Soy beans for Quebec. *J. of Agriculture and Horticulture (Quebec, Canada).* June 1. p. 3.
• ***Summary:*** "The Soy Bean (Glycine soja) has not been generally recognized as adapted to climates as cool as that of Quebec and as most of the varieties on the market are only suitable for growing in warmer climates this is as it should be... we now have at least one variety which we can confidently recommend as suitable for the climate of Montreal..."

"The Soy Bean is an exceedingly important crop in Manchuria, Japan and Korea and is exported in large quantities from these countries."

"Like the ordinary bean, the soy bean is an annual that cannot be planted until danger of frost is over,–about the first of June [in southern Quebec].

"In the countries where soy beans are grown extensively they are used largely for human food... In this country where the production is likely to be on a small scale for some years their principal use will be for human food either as baked beans or in a ground condition [as flour] for making muffins, biscuits, etc. In using them as baked beans they may be used without pork as the large percentage of fat which they contain makes the use of additional fat unnecessary.

"In preparing them it is important that they be soaked over night *in a large quantity of water,* and this water poured off before they are boiled. The large quantity of water is necessary to dissolve out of them a disagreeable flavor which they possess naturally. Otherwise they are cooked in exactly the same way as ordinary beans." Note: No; they must be cooked much longer than ordinary beans.

"In the Cereal Department of Macdonald College considerable work has been done in selecting varieties for earliness and yield, and seed of one variety that will mature here every year is now available in limited quantities. This variety is known as Quebec No. 92. To those who wish to try them the Department is willing to send samples of one pound as long as the available supply lasts."

Photos show: (1) Mature plants of Quebec No. 92 soy beans. (2) A field of soy beans in midsummer.

193. Vanderleck, J. 1918. Nitrocultures for soy beans. *J. of Agriculture and Horticulture (Quebec)* 21:180. June.
• ***Summary:*** "... there exists a bacterial culture for soy beans, which will enable the plants to obtain the nitrogen from the air. Inoculated soy beans can be grown on a poor soil, but the culture mentioned is never present in the soil and it is necessary each year to inoculate the seed beans afresh. The Bacteriological Department of Macdonald College can supply soy bean cultures at the nominal price of twenty-five cents a bottle, sufficient to inoculate one bushel of seed beans." Address: Canada.

194. *Toronto Daily Star (Canada).*1918. News briefs. July 18. p. 5.
• ***Summary:*** "Canadian food officials have become very impressed with the value of the soya bean."

195. Fellers, C.R. 1918. Report on the examination of commercial cultures of legume-infecting bacteria. *Soil Science* 6(1):53-61. July. [10 ref]
• ***Summary:*** The author concluded: "Soybeans seem to be harder to inoculate than most of the common legumes. Many of the cultures failed to give satisfactory results with this plant. The soil-transfer method is recommended for soybean inoculations except when commercial cultures are known to be of good quality."

"Harrison and Barlow, of the Ontario Agricultural College, did pioneer work in North America and originated the method of growing *Bacillus radicicola* on a nitrogen-free medium. This was soon copied by others until, at the present time, most of the cultures on the market are pure cultures of definite varieties of the nitrogen-gathering bacillus, grown on a nitrogen-free or, rather, a nitrogen-poor agar medium." Address: New Jersey Agric. Exp. Station.

196. *J. of Agriculture and Horticulture (Quebec).*1918. Soy beans as food. 22:48. Sept. 1.
• ***Summary:*** "The housewife of to-day who desires to patriotically conserve needed foods for overseas and at the same time provide adequately for her own household is naturally on the lookout for new articles to add to her dietary list. Such a one which has much to recommend it is soy beans...

"Most varieties require a longer season for maturity than our northern climate provides but there are one or two that appear to thrive in Quebec and a number of people are trying them this year. They are said to produce abundantly so it is probable that many housewives will be giving them a trial this season for the first time, and a few suggestions as to their treatment may be welcome.

"In Japan and China soy bean milk is prepared and used extensively. This milk is also sold in a condensed form and as curd [tofu]. Other preparations are vegetable butter and

cheese, and the extracted oil is sold for table use and for cookery.

"The Food Preservation Demonstrations of the Canada Food Board form an interesting feature of the fall fairs this year."

Describes the preparation of: (1) Green soybeans. "If cooked when about three-fourths grown as green beans the water should be changed once during cooking". (2) Dry soybeans. Long soaking in a large quantity of water improves the flavor by assisting "in the removal of any disagreeable principle." To serve as baked beans, in a crock, add to 2 cups cooked beans, ¼ teaspoon mustard, salt, a few grains of cayenne pepper, ½ cup tomato catsup, or if desired a few drops of onion juice, or 2-3 tablespoons molasses, or a teaspoonful of Worcestershire sauce. (3) Soy flour. "The raw soy beans may be ground into meal and combined with flour for bread, biscuits, or muffins. In the bread 1/3 soy bean meal may be used, in the biscuits and muffins a larger proportion." The meal tastes best if slightly browned.

Note: This is the 2nd earliest document seen (Jan. 2010) concerning soybeans in Quebec province, Canada, or the cultivation of soybeans in Quebec province (one of two documents). Address: Canada.

197. Jordan, Sam. 1918. Soy beans from soup to nuts: A new crop with many uses both on farms and in factories. *Country Gentleman* 83(39):7, 34. Sept. 28.

• ***Summary:*** Begins by discussing: The possibilities of soy beans "as a substitute for meat." The rising demand for "soy oil" which started a few years ago when the flax crop was little better than a total failure. "Industrial uses" of soy oil in soap, paint, and varnish. "Several packing houses were experimenting with the oil as a possibility in oleomargarine manufacture." "Soys fix soils for cotton." "Varieties of soy beans have been matured as far north as Quebec" [Canada]. The "development of the soy in the cotton sections will no doubt be swifter from an industrial standpoint because of the already existing facilities for oil extraction."

Concerning food uses, the author believes that "the soy bean as human food is destined to play a leading part in the way of a substitute for meat. From studies made of soy beans as food, the use of flour seems to be one form in which their use will suit the American taste and palate best."

"I have heard that the soy-bean milkman comes around before breakfast each morning in the Orient and leaves soy-bean milk." A Chinese student recently verified this story and said that in his family's household "it was customary to drink a glass of the milk upon arising." The student added that fried bean curd was often served for breakfast, and with soy sauce for dinner. "This soy sauce is something more or less familiar to Americans, the acquaintance being contingent upon the frequency with which our Chinese restaurants are patronized. It is the dark-brown liquid usually on the tables in the vinegar bottles. It is also the base of our Worcestershire sauces.

"For supper a favorite dish is sprouted beans in salad form, mixed with small pieces of meat or egg. They usually have also some form of bean cheese or fermented boiled beans. Next to baked and boiled beans, the preparation of soy-bean milk is a thing which should be more widely known."

"The author gives a brief description of how this milk is made, noting that it can be used in "cream sauces, puddings, custards, and even ice cream when some high flavoring is added to kill the beany taste. Much of the strong taste can be eliminated by boiling the milk slowly and stirring to prevent scalding.

"The residue [okara] obtained by straining the milk makes an excellent base for muffins and even bread, when it is used in the proportion of one part to three or four parts of wheat flour."

"In regard to fresh bean curd or 'tofu,' as the Chinese call it, it is hardly probable that we shall use it generally at an early date. The process of making it will no doubt come through the activities of our increasing number of women home-demonstration agents and, also, it is being made commercially by several Chinese firms in this country. When it does become more widely known, however, it is destined to be used extensively. It has very little taste of its own, and takes the flavor of everything with which it is used, generally as a base. It is also highly nutritious.

"Soy sauce is likewise destined for greater use, but the process of its manufacture is too complicated for domestic preparation. It can be purchased at Chinese groceries in this country, and probably from the majority of Chinese restaurants.

"Another dish which tastes as good as it looks or sounds is soy-bean sprouts. The smaller beans, of some yellow or green variety, are usually used." They are excellent because of "their use in the winter, acting as a green vegetable, and the fact that the vegetable can be had whenever wanted."

"And here is one for vegetarians–a 'vegetarian roast.' This is made by using equal parts of soy beans and peanuts, with the peanuts roasted and the beans boiled until soft before both are mixed and treated as an ordinary meat loaf. Such a roast as this is now being prepared by several food-manufacturing firms in the South, where both peanuts and soy beans are plentiful. It is being placed on the market in one and two pound containers."

"The beans served as a green vegetable are treated after hulling in much the same manner as Lima beans or peas. To hull, however, they should be boiled in the pods for about five minutes, then dipped into cold water, after which they shell easily. They can also be canned in this way, treating them after hulling the same as Lima beans. It is often desirable to serve them with rice or potatoes."

"So here we have a small glimpse of what their [soy beans'] future really is. A crop with a great industrial importance, a crop with known forage and manurial possibilities, and a crop holding forth a beneficent promise as an essential food, soy beans will soon be giving corn and wheat a close race for the more prominent places on our agricultural map."

Photos show: (1) Soy beans after being soaked but before boiling. (2) Piles of hay, used for forage. (3) Side view of a soy-bean harvester (with a man on top, pulled by two horses) used in the South, showing the bags filled. (4) A rear view of the same separating and bagging soy-bean harvester.

Note 1. This is the earliest document seen that uses the term "from soup to nuts" in connection with soybeans. Note 2. This is the earliest English-language document seen (Feb. 2000) that uses the term "soy-bean sprouts" to refer to these sprouts. Address: Columbia, Missouri.

198. *J. of Agriculture and Horticulture (Quebec, Canada).*1918. Soy beans, used like navy kind, make valuable food: Ancient China's product can be serve in numerous ways. Oct. 1. p. 67.

• ***Summary:*** From Weekly News Letter, U.S. Dept. of Agriculture [22 May 1918, p. 3]: "When prepared like the ordinary field or navy beans, soy beans should be soaked for 10 or 12 hours or more, if necessary, and boiled slowly. The boiled soy beans,... may be seasoned and used as a principal part of a meal as they are or may be made into bean loaf, bean croquettes, or other dishes.

When soy beans are three-fourths or more grown, the seed make a palatable and nutritious green vegetable.

Also discusses "soy-bean milk" ("a milky emulsion is obtained which is similar in appearance and properties to cow's milk"), "tofu or bean curd" (the addition of either magnesium chlorid [chloride] or calcium sulphate to soy-bean milk precipitates some of the proteid substances, forming a grayish-white curd).

"Soy or shoyu sauce is a dark-brown liquid prepared from a mixture of cooked and ground soy beans, roasted and pulverized wheat or barley, salt, and water, inoculated with a culture known as rice ferment and left in casks to ferment for six months to a year or longer. The liquid obtained is used in many countries, including the United States, as a sauce for meat or vegetables."

199. *International Institute of Agriculture, Bureau of Statistics (Rome), Review.*1918. International trade in concentrated cattle foods. No. 4. 72 p. Nov. [1 ref]

• ***Summary:*** This is the IIA's fourth review on concentrated cattle foods. "The first three reviews were published in the *International Review of the Science and Practice of Agriculture,* in the numbers of April 1915, 1916, and 1917." This publication is divided into six chapters. In Chapter 4, titled "Oil seeds and oilcake" the section on "Soya beans and soya cake" contains statistics on three subjects: Production, trade, and prices. Tables show: (1) "Produce in soya cake in the importing countries (estimated on the basis of the quantities of soya beans available) (p. 51). Figures are given in quintals for the years 1913-1917 for the following countries: Denmark, Great Britain and Ireland, Netherlands, Russia (including Asiatic provinces), China, Formosa, Japan, Dutch India (Java and Madura), and New Zealand. The top 3 countries in 1917 are: Japan 727,418. Denmark 284,000, and Great Britain and Ireland 223,969. However in 1915 Great Britain and Ireland produced 1,513,059. Note: 1 quintal = 100 kg.

(2) "Foreign trade in soya cake" (p. 51). Statistics are given in quintals for the years 1913-1917. Import figures are given for Denmark, Canada (incl. soya beans), Formosa, and Japan. Japan was by far the biggest importer, with 9,912,850 quintals in 1917. Export figures are given for Denmark, Great Britain, and China. China was by far the biggest exporter with 7,034,459 quintals in 1916.

Canadian imports of soya cake (including soya beans) was as follows (in quintals) for each financial year (p. 51): 2.345 in 1913. 2.412 in 1914. 1.121 in 1915. 1.358 in 1916. 4.730 in 1917. Note: This is the earliest document seen (Jan. 2010) that gives Canadian trade statistics for soybeans or soy products. This document contains the earliest date seen (1913) for trade of such products to or from Canada.

(3) "Foreign trade in soya beans" (p. 51). Statistics are given in quintals for the years 1913-1917. Import figures are given for Denmark, Great Britain and Ireland, Netherlands, Russia (incl. Asiatic provinces), Sweden, Formosa, Japan, and Dutch India (both Java and Madura, and Other possessions). The biggest importers in 1917 were: Japan 841,942, and Great Britain and Ireland 254,510. Export figures are given for Netherlands, China, Formosa, and Japan. China was by far the biggest exporter with 5,315,324 quintals in 1916.

(4) Foreign trade in sundry and unspecified oilcakes (p. 62). Gives imports statistics for soya cake by Roumania [Romania]: 79,378 quintals in 1913, 36,650 quintals in 1914, 5,554 quintals in 1915. Gives export statistics for soya cake by Russia: 54 quintals in 1913.

(5) "Prices of sundry oilcakes at the close of each week" (p. 55-56). For soya cake, the prices are given at Copenhagen, Denmark, for 1917 and 1918 in gold francs. The price rose by about 41% between Jan. 1917 and Jan. 1918 from 46.47 to 62.16 gold francs.

(6) "Other vegetable products" (p. 71). In 1913 Denmark exported 1,390 quintals of soya meal.

This document also contains extensive information on groundnuts and groundnut cake, sesamum and sesamum cake, etc.

Note 1. This is the earliest English-language document seen (Aug. 2000) that contains the word "oilcakes." Note 2.

This is the earliest English-language document seen (Jan. 2001) that uses the word "quintals" (or "quintal") in connection with soybeans. Address: Rome, Italy.

200. Bell, Archie. 1918. Sunset Canada: British Columbia and beyond. Boston, Massachusetts: The Page Company. xii + 320 p. Illust. Index. Series: See America First.
• ***Summary:*** Chapter 10, titled "The Royal City," is about New Westminster in British Columbia, Canada. In 1859, New Westminster was selected as the first capital of the new Colony of British Columbia by Queen Victoria, who named the city after part of London. It soon became known as "The Royal City." Located on the north bank of the Fraser River, 12 miles southeast of Vancouver City, it was the only freshwater harbor of any consequence in Western Canada.

Yet the Canadian Pacific Railroad bypassed New Westminster (a crushing disappointment to the city's people) and went instead to Vancouver. Still its location "is strikingly similar to that of New Orleans on the Mississippi river or Shanghai above the mouth of the Yangtzu-Kiang. Both of the latter compelled the commerce of the world to come up the river to them.

Across the Fraser river one soon arrives at Steveston, which is almost an Oriental City; most of the inhabitants are Japanese fisherman, and they live much as if they were still in Japan. On Lulu Island at Steveston, "the native instinct for beauty and love for the picturesque has prompted the planting of shrubs and flowering plants. Sometimes they are in painted tin cans, in [wooden] soy kegs or in China urns; the idea is the same, the beautification of the dooryard, which is as noticeable among Nippon's very poor, where the dooryard may not be more than two square yards in area, as among the rich and noble who can build extensive parks and landscape gardens." Address: Author, Cleveland, Ohio.

201. O.A.C. No. 111: New Canadian domestic soybean variety. 1919. Seed color: Yellow (straw), hilum pale.
• ***Summary:*** Sources: Zavitz, C.A. 1919. "Farm crops: Results of experiments at the Ontario Agricultural College." *Ontario Department of Agriculture, Bulletin* No. 268. 80 p. Jan. See p. 44. The section titled "Varieties of soy or soja beans" (p. 43-44) states that twelve soybean varieties have been grown in competition in each of the past five years in succession. A table (p. 44) shows the average weight in pounds per bushel volume and the average number of pounds of grain per acre for the following varieties, listed in descending order of pounds of grain per acre: O.A.C. No. 111 (946 lb/acre), Buckshot (945 lb/acre), Habara (940), Chernie (927), etc. "All varieties, however, were surpassed by a selection [O.A.C. No. 111 = Ontario Agricultural College] made at the College which was started from an individual plant selected from the Early Yellow variety." Note: In the USA, Early Yellow was renamed Ito San by about 1902.

Zavitz, C.A. 1927. "Forty years' experiments with grain crops." *Ontario Department of Agriculture, Bulletin* No. 332. p. 36-87. Oct. See p. 84-85, 87. A table (p. 85) lists eight soybean varieties that have been grown under similar conditions at the Ontario Agricultural College in each of the past 14 years. O.A.C. No. 111 has the second highest seed yield (19.92 bu/acre) after Habaro No. 20405 (20.38 bu/acre). A second table (p. 85) lists 13 soybean varieties that have been grown at the College in the last five years. O.A.C. No. 111 has the fourth highest seed yield (25.95 bu/acre) after O.A.C. 211 (28.10 bu/acre), Manchu (27.38), and Tsurunoko (26.42). A third table (p. 87) lists 26 soybean varieties that have been grown at the College in the last three years. O.A.C. No. 111 has the eighth highest seed yield (1,618 lb/acre); O.A.C. 211 has the highest seed yield (1,821 lb/acre). Address: Ontario, Canada.

202. Zavitz, C.A. 1919. Farm crops: Results of experiments at the Ontario Agricultural College. *Ontario Department of Agriculture, Bulletin* No. 268. 80 p. Jan. See p. 43-44, 77.
• ***Summary:*** The section titled "Varieties of soy or soja beans" (p. 43-44) states that twelve soybean varieties have been grown in competition in each of the past five years in succession. A table (p. 44) shows the average weight in pounds per bushel volume and the average number of pounds of grain per acre for the following varieties, listed in descending order of pounds of grain per acre: O.A.C. No. 111 (946 lb/acre), Buckshot (No. 17251, Wash.; 945 lb/acre), Habara (No. 20405, Wash.; 940), Chernie (No. 18227, Wash.; 927), Brown (918), Quebec No. 92 (886), Early Yellow (851), Tsurunoko (839), Quebec No. 537 (815), O.A.C. No. 81 (805), Ito San (800), Medium Green (370 lb/acre).

"Three varieties were obtained through the Department of Agriculture at Washington [DC] and these [Buckshot, Habara, and Chernie] occupy second, third and fourth places in the list in average yield per acre for five years. All varieties, however, were surpassed by a selection [O.A.C. No. 111 = Ontario Agricultural College] made at the College which was started from an individual plant selected from the Early Yellow variety. We obtained two selected varieties from the Macdonald College, Quebec, under the name of Quebec No. 92 and Quebec No. 537. The former occupies sixth and the latter ninth place in average yield of grain per acre. In 1918, the highest yield in the duplicate experiment was obtained from the Habara [Habaro].

"In each of the past few years two varieties have been distributed for co-operative experiments. The Brown variety has proven early and in some seasons and under certain conditions has given a little higher results that the O.A.C. No. 81. In normal years the O.A.C. No. 81 has surpassed the Brown variety."

In the section titled "Summary regarding good seed" (p. 76-77) we read: "Soy or Soja Beans. O.A.C. No. 111.–

Medium early, vigorous grower, yellow beans, heavy yielder of fodder. O.A.C. No. 81.–Early, yellow beans, heavy yielder of grain."

Note: This is the earliest document seen (Jan. 2010) that mentions the soybean variety O.A.C. 111; it was developed at the Ontario Agricultural College in Guelph, Ontario, Canada. Address: Ontario, Canada.

203. Ladd, Culver. 1919. Soya bean investigation. *North Dakota Agric. Exp. Station, Food Department, Paint Bulletin* 1(7):130-38. Oct.

• ***Summary:*** "At the request of the Paint Manufacturers Association the chemical department carried on an investigation with soya beans grown by the Paint Manufacturers Association. The beans represented some 30 or 40 varieties and covered those grown from 1912 to 1916 inclusive. The beans were grown in several states under various climatic conditions but principally in New Jersey.

"The object of the investigation was to determine what varieties were best suited to the various growing conditions and to obtain, at the same time, an oil suitable for use in the paint industry. The need for such an investigation was the demand for a suitable substitute for linseed oil which is becoming scarce with its rapidly increasing use."

The results tabulated for samples including the crops of 1912, 1913, and 1914 were published in September 1916 in Bulletin No. 118. The following table gives results for the 1915 crop." Table I shows the variety name of 73 soybean varieties, and for each is given the percentage of moisture and fat, specific gravity at 15.5ºC, Refractive Index at 25ºC, Iodine Number, and Saponification Number. Average values for the 73 varieties are: Moisture 7.77%, fat 18.36%, specific gravity 0.9250, Refractive Index 1.4728, Iodine Number 128.7, and Saponification Number 193.1. The varieties are: Black Beauty or Ebony, Ito San, Juelph [Guelph] (Medium Early), Haberlandt, Peking, Wilson, Hollybrook (early), Medium Yellow, Tahas, Brown, Morse, Manchurian, Mercko / Mercks, Ogema, O'Kute [Okute], Habers [?], Lowrie, Austin, Chestnut, Columbia, Meyer, Tokio, Swan, Cloud, Virginia, Flat King, Sherwood, Early Brown, Edward, Black Eye Brow [Black Eyebrow], Manchu, Green, Quebec No. 92, Quebec No. 537, Brownies [Brownie], Sooty, Arlington, White Eye Brow [White Eyebrow], Barchet.

Table II, which has the same structure, gives the same information for 65 soybean varieties grown in 1916. No new varieties were grown, but Mercko was written "Mercks." At the top of the table it is noted that "This summer, 1918, there were grown at this institution [in Fargo, North Dakota] soya beans, the seed for which came from the 1916 crop and the investigation will be continued another year at least."

Note: This document contains the third earliest date seen (Jan. 2004) for the cultivation of soybeans in North Dakota (summer 1918). The source of these soybeans was probably the Paint Manufacturers Association of New Jersey.

Table III, whose structure is partly different from that of the first two tables, shows the values for each variety from year to year and in different locations of growth. It also includes: A description of the bean color, size, shape, and color inside. The years grown range from 1913 to 1916. The locations include New Jersey (the most common), South Dakota (Ito San in 1914), West Virginia (Mammouth [Mammoth]), Rhode Island (Wilson in 1913), Kansas (Hollybrook, early), Tennessee (Tokio in 1913), Maryland (Virginia in 1913), Indiana (Sherwood and Early Brown in 1913), Alabama (Edward in 1913), Bureau of Plant Industry (Black Eye Brow in 1917, plus Manchu and Green), McD. [Macdonald College], Quebec, Canada (Quebec No. 92 and No. 537 in 1913), and Kentucky (Brownies). Address: Commissioner, Fargo, North Dakota.

204. Baker, E. Carleton. 1919. Marketing the Far Eastern bean crop. *Commerce Reports [USA] (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce)* 22(279):1170-73. Nov. 28.

• ***Summary:*** Contents: Introduction. Shipments of beans and bean oil. Marketing methods. Packing for export. Chinese weights employed in the bean trade. Method of buying bean oil from Chinese mills. American purchasing organization method.

By George H. Scidmore, Consul General, Yokohama: Statistics of bean crop in the Hokkaido. Exports of beans for two years [from Hokkaido]. Total exports of chief varieties [species] of 1918 crop. Speculation a strong factor in bean trade.

"Manchuria is essentially an agricultural country, about 70 per cent of the people being directly or indirectly dependent upon the land. Soy beans form the staple crop of Manchuria, and upon them the prosperity of the people depends."

"The Mukden consular district comprises the greater part of South Manchuria and produces an enormous quantity of soy beans. This crop is given preference to others because it yields the surest and greatest profit." I 1918, the following shipments were made from the principal bean markets along the South Manchuria Railway. A table (p. 1170) gives, for each station, the tons of soy beans and bean oil shipped: Liaoyang, Fushen, Mukden, Tiehling, Kaiyuan (178,050 #2 for beans), Changtu, Shuang Miaotzu, Szuping Kai, Kuochiatien, Kungchuling, Fanchiatun, Changchun (706,000 #1 for beans).

Hokkaido, Japan: "Practically all of the beans destined for export from Japan are grown in the Hokkaido. The total crop for 1919 it is estimated will amount to 318,000 long tons, of which about 277,000 long tons [87%] will be obtainable for export." The beans are sold in bags of 100

*kin* (132 pounds) each. Varieties of beans produced in Hokkaido: Shozu [azuki], Dainagon shozu, Other shozu. Daizu (soybeans; with number of bags produced in Hokkaido in 1916) 615,114, Akita daizu 754,996, Tsurunoko daizu 52,970, Sodefuri daizu 77,673, Kuro daizu [black] 143,152, Other daizu (No data until 1919). Daifuku, Chufuku, etc.

Another table (p. 1172) shows which foreign countries imported the exportable surplus of the Hokkaido bean crop in 1916 and 1917. The biggest customer for soy beans by far, in both years, was the USA, followed by Canada. Canada's imports from Hokkaido, Japan, were as follows: In 1916: 131,421 *kin* (173,476 pounds weight or 77.44 long tons of 2,240 pounds per ton). In 1917: 256,042 *kin* (337,974 pounds weight or 150.88 long tons). Note: These two years were during World War I, when Japan and Canada were allies. Canada probably used these soybeans as a source of both oil (for soap) and meal (probably fed mostly to hogs to increase bacon production).

The USA also imported large amounts of small red [azuki] or white beans *(Phaseolus subtrilobata).* Address: Consul General, Mukden, China.

205. **Product Name:** Milqo (Soy Milk).
**Manufacturer's Name:** Milqo Ltd. Later renamed Milquo Ltd., then Vi-Tone, then Milk-Ko.
**Manufacturer's Address:** Milqo Ltd., Hamilton, ONT, Canada.
**Date of Introduction:** 1919.
**New Product–Documentation:** W.L. Burlison and O.L. Whalin. 1932. *Journal of the American Society of Agronomy* Aug. p. 594-609. "The production and utilization of soybeans and soybean products in the United States." See p. 608. In a table under "Canadian Products" "Milqo (soy milk)" is listed.

H.W. Lohse. 1936. *Canadian Chemistry and Metallurgy.* July. p. 224-25. "The soya bean as a food product and industrial raw material." The author, who is from Milqo Ltd., Hamilton, Ontario, Canada, states in this paper presented at the Canadian Chemical Convention: "Soya bean milk has been manufactured here in Canada by Milqo Limited in Hamilton since 1919. This firm erected one of the first, if not the first, plants for the purpose of this manufacture on a large scale in the Western world."

American Soy Bean Association. 1938. "16th annual meeting." This leaflet lists the stores from which the soy products were purchased, incl. Milqo Limited, Vi-Tone Company, Hamilton, Ontario, Canada.

*Soybean Digest.* 1948. "Grits and flakes... from the world of soy: Milquo Ltd. is now Vi-Tone." Jan. p. 34. "Milquo Limited has changed its firm name to Vi-Tone Products Limited, 198 Gage Ave. S., Hamilton, Ontario. Ray H. Bissell is president."

*Soybean Blue Book.* 1954. p. 102. Milk-Ko Products in Hamilton is probably the same company that was previously named Milqo Ltd.

Note: This is the earliest known commercial soy product made in Canada, or in the province of Ontario.

206. Smith, Joseph Russell. 1919. The world's food resources. New York, NY: Henry Holt and Company. 634 p. See pages 326-27, 360-65. [1 ref]
• ***Summary:*** Contains a brief overview of the soybean, soybean production, and soybeans as a food product, with several long excerpts from Dr. J.H. Kellogg, and the *USDA Year Book of Agriculture* (about food uses, including shoyu or soy sauce).

A photo shows "Soy bean curds and cheeses in a Japanese factory," in large earthenware containers (p. 362). Note: This photo of "curds and cheeses," taken by Frank N. Meyer, shows the production of fermented tofu, probably in a Chinese factory (See: (1) Morse 1918. "The Soy-bean Industry in the United States." Plate IV, fig. 2; (2) Piper & Morse. 1923. *The Soybean.* p. 242).

Concerning use of food resources, in the USA and Canada, the chief goal of agriculture is not to feed humans but to feed animals. This was true even in the food crisis of 1918 [at the end of World War I]. About 5,191 million bushels of grain are now grown in the USA; in descending order of importance (in million bushels) they are corn (2,863), oats (1,422), wheat (643), barley (195), rye (54), and buckwheat (14). Of this total of 5,191 million, the American people eat less than 550 million (14.1%). Adding the 340 million bu exported, the total amount used for human food was 900 million bu (17.3%). "The rest, 4,300 million, went to our four-footed brethren, who outnumber us and whose food requirements, because of their greater size, are several times our own.

"In addition to the grain, they get all of the 85,360,000 tons of hay grown on 54,618,500 acres. (More than ten per cent of the half billion acres under cultivation in the United States). They also roam over millions of acres eating all the grass. It is therefore plain that more than four-fifths [80%] of the produce of American agriculture, even in 1918 [a war year], went to feed beasts." Address: Prof. of Geography, Columbia Univ., New York.

207. Burnett, L.C. 1920. Soybeans in the cornbelt: A crop that demonstrated its worth. *Successful Farming* 19(3):18, 46. March.
• ***Summary:*** "Last year the farmers of Iowa bought, from outside the state, $16,000,000 worth of high protein concentrates... Feeders are now using all of the available supply and our only solution of the protein problem lies in our ability to produce more protein on cornbelt farms.

"The soybean is the crop best adapted for measuring the production of protein in this section. It is an annual

legume; it will grow anywhere that corn grows, and with about the same degree of success. The ways in which it may be utilized are numerous and varied."

The best known of the early soybean varieties are Ito San and Chestnut. "These have been grown successfully as far north as Minnesota, Ontario [Canada], and the New England states. In the central parts of the cornbelt they are advised for late planting. In the northern parts they are chiefly used to plant with corn. The common medium maturing varieties are Medium Early Yellow, Perley's Mongol, Medium Green, Manchu and Black Eyebrow." The most common late variety is Manchu. For silage the best varieties are Manchu, Black Eyebrow, Medium Green, and Medium Early Yellow. A photo shows a field of harvested soybeans, with a barn in the background. Address: Iowa.

208. Kline, Charles E. 1920. Oil-bearing seeds and nuts in the Shanghai District of China. *Commerce Reports [USA] (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce)* 23(98):519-22. April 26.

• ***Summary:*** The chief plants yielding vegetable oils in China are [soy] beans, cotton seed, peanuts, rapeseed, sesamum seed, tea seed, and woodnuts (filberts).

The number of oil mills in China is increasing, and those in northern China treat mainly soya beans, while those in central China produce the other varieties of oil mentioned. The oil mills do not work year round, since there is not sufficient seed available, and also since the high summer temperatures cause the oil to become rancid.

The total capacity of oil mills in Shanghai is 5,400 piculs/day (321 tons/day).

Tables show: (1, p. 520) The quantities of oil, oilseeds, and oil cake exported from the port of Shanghai during the years 1917 and 1918. 1 picul = 133.33 lb. For [soy] bean oil: In 1917–2,351 piculs worth $26,482. In 1918–5,771 piculs worth $71,601. For [soy] bean cake: In 1917–11,213 piculs worth $27,246. In 1918–282 piculs worth $800.

(2, p. 520) The quantities of oil and cake exported from China to the countries of destination; the year (or years) is not given. Both the weight (in piculs; 1 picul = 133.33 lb) and value (in dollars) are given for each destination. In descending order of weight exported:

[Soy] bean oil–United States (incl. Hawaii) 2,136,746 piculs. Japan (incl. Formosa [Taiwan]) 87,673. Korea 23,611, Russia 19,802. Canada 4,001. France 2,132.

[Soy] bean cake: Japan (incl. Formosa) 15,150,706 piculs worth $33,383,750. Korea 635,362 piculs worth $1,292,174. Russia 578,960 piculs worth $968,829. Siam 1,412 piculs worth $4,625. United States (incl. Hawaii) 27 piculs worth $54. Canada 9 piculs worth $17.

(3, p. 521) Ocean freight rates from Shanghai to various ports. Figures are given for bean oil and bean cake in 1917, 1918, and 1919 shipped to San Francisco [California], London, and Marseille, Naples & Venice. Present prices (total) are about five times as great as those at the beginning of the war. Address: Vice Consul, Shanghai [China].

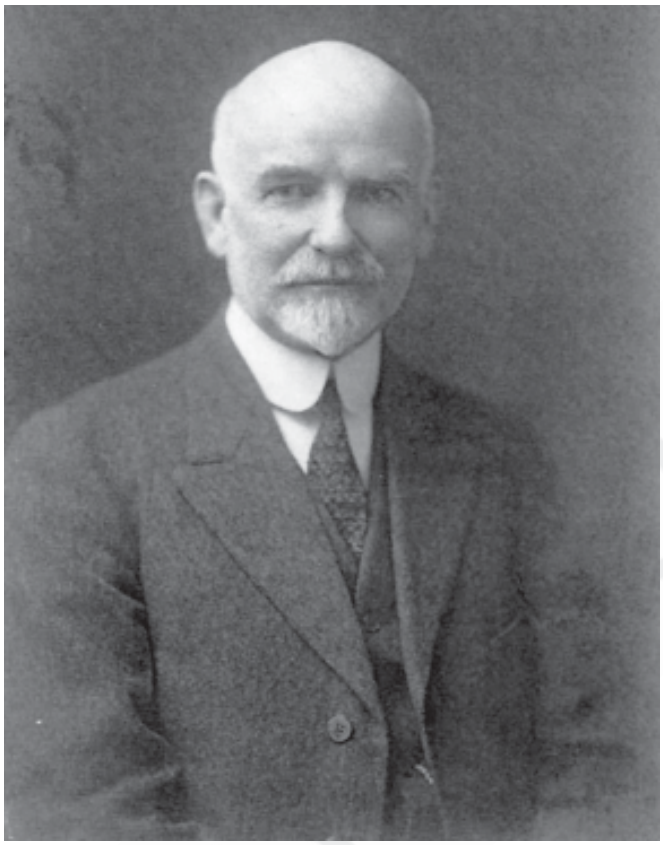
209. Page, Thomas Walker; Lewis, D.J.; Culbertson, W.S.; Costigan, E.P. 1920. Survey of the American soya-bean oil industry. Washington, DC: U.S. Government Printing Office. Prepared by the United States Tariff Commission and printed for use of Committee on Ways and Means, House of Representatives. 22 p. 24 cm.

• ***Summary:*** Contents: Summary. Summary table. General information: Description, uses, methods of production (domestic production and consumption), domestic exports, foreign production and international trade, imports, prices, competitive conditions, and tariff history. Production in the United States (alternative). Imports by country. Imports for consumption (soya bean oil cake). Domestic exports. Prices: Soya bean oil (Dairen, Manchuria), soya bean oil (New York), soya bean oil cake (Dairen). Rates of duty. Miscellaneous.

Tables show: (1) Domestic soya-bean oil production, imports for consumption, domestic exports and value of imports for consumption for the calendar years 1910-1920 (p. 8). (2) Soya-bean oil production in the United States in pounds, 1914, 1916-1919 (p. 16). (3) Soya-bean oil imports by countries 1912-1920. Statistics on quantity and value of imports to the USA from Belgium, England, China, Japan, Canada, Manchuria, all others (p. 16). (4) Revenue on soya-bean oil imports for consumption, 1910-1920 (p. 17). (5) Revenue on soya bean oil cake imports for consumption, 1912-1919. (6) Quantity and value of domestic exports of soya bean oil for 6 months ending Dec. 31, 1919. Exported to: Austria-Hungary, Belgium, Denmark, France, Germany, Italy, Netherlands, Sweden, United Kingdom, Canada, all other (p. 17). The largest amount was exported to the United Kingdom. (7) Spot prices of wholesale soya-bean oil at Dairen, Manchuria, 1918 and 1919. (8) Prices of Manchurian soya-bean oil in New York, 1913-1919. Data from *War Industries Price Bulletin* No. 49. (9) Prices of soya-bean cake in Dairen, 1918-1919. Data from *Manchuria Daily News.* (10) Rates of duty on soya-bean oil, 1883-1913 (p. 18). (11) Consumption of fats and oils by the lard-substitute industry, 1912, 1914, 1916, 1917. Includes soya-bean oil and peanut oil. (12) Consumption of fats and oils by the soap industry, 1912, 1914, 1916, 1917. Includes soya-bean oil and peanut oil (p. 19-20). (13) Consumption of fats and oils by the oleomargarine industry, 1912, 1914, 1916-1918. Includes soya-bean oil and peanut oil (p. 20). (14) Approximate net import and crush of soya beans in Europe, 1908-1913. Incl. United Kingdom, Germany, Netherlands, Denmark. (15) Exports of soya beans (international trade), 1911-1918. (16) Imports of soya beans (international trade), 1911-1919. (17) Exports of soya bean oil (international trade) 1911-1919. (18) Imports of soya

bean oil (international trade), 1911-1919 (p. 21). (19) Foreign exports of soya bean oil from the United States, 1912-1919. Gives quantity and value exported to Canada, Mexico, British West Indies, Belgium, Netherlands, Sweden, France, England, Austria-Hungary (p. 22). In 1919, 2,060 pounds worth $258 were exported to Mexico. Note: This is the earliest document seen (Feb. 2009) that gives statistics for trade (imports or exports) of soybeans, soy oil, or soybean meal to Mexico or Central America. Address: Chairman, U.S. Tariff Commission, Washington, DC.

210. Portrait of Prof. Charles Ambrose Zavitz (Photograph). 1920. Undated.



• ***Summary:*** This black-and-white undated photograph of Prof. Zavitz (lived 1863-1942) is 4 by 6 inches. He is wearing a double-breasted suit and necktie. His head is nearly bald and he has a white mustache and a white pointed beard. He looks serious (not smiling) and is facing slightly to the right.

211. Zavitz, C.A. 1920. Results of co-operative experiments in agriculture. *Ontario Agricultural and Experimental Union, Annual Report* 41:9-32. For the year 1919. See p. 11, 14-15, 21.

• ***Summary:*** In the section on "Spring crops, 1919," a table titled "List of experiments for 1919" (p. 11), under "Grain crops" includes "Testing three varieties of Soy, Soja, or Japanese beans–3 plots." Note: Soy is never listed under "Forage, fodder, silage and hay crops," nor under "Culinary [edible/food] crops" in this table.

The subsection titled "Soy beans" (p. 21) states: "The past season has been more favorable for growing the Soy beans than any one of the three previous years. Three varieties of Soy beans have been distributed in each of the past two years. The following gives the average yield of threshed beans in bushels per acre per annum: Habara [Habaro] 14.7; O.A.C. No. 81, 11.9; and Brown 10.7. The Soy beans, when ground, are about equal for feeding purposes to cotton seed meal. They are richer than any other grain grown in Ontario and a small amount greatly helps the meal ration, especially for dairy animals." Address: Dr., Prof. of Field Husbandry, O.A. [Ontario Agricultural] College, Guelph [Ontario, Canada].

212. Loehnis, F.; Hansen, Roy. 1921. Nodule bacteria of leguminous plants. *J. of Agricultural Research* 20(7):543-56. Jan. 3. Plus 3 unnumbered pages of plates at end. [19 ref]

• ***Summary:*** This article begins: "Despite the fact that the nodule bacteria of the leguminous plants have been made the subject of numerous publications, it is not to be disputed that their true morphological and physiological character, as well as their correct systematic position, are by no means sufficiently known. This is especially clearly demonstrated by the fact that they are still proclaimed by several writers to be the representatives of a special genus *Rhizobium...*" Note: This is the earliest English-language document seen (March 2003) that uses the word "Rhizobium" in connection with the root nodule bacteria.

Nodule bacteria from 11 different leguminous plant species were studied. It was concluded that these can all be "divided into two groups, differing morphologically as well as physiologically. The first group shows all features characteristic of *Bacillus radicicola* Beijerinck." It produces nodules on the roots of many legumes, not including soybeans or cowpeas.

"The second group is characterized by monotrichic flagellation, comparatively very slow growth on agar plates, and inability to cause a marked change in milk. It has been isolated from cowpea, soybean, peanut, beggarweed, Acacia, Genista, and Cassia.

"According to the customary manner of classifying bacteria, this second group of nodule bacteria would have to be considered to be a new species, and according to the rules of priority, it would have to be named *Pseudomonas japonica* or *Bacterium japonicum* (Kirchner). But we do not advocate such a procedure, because only a complete study of the life history of these two groups of organisms would make it possible to say definitely whether they are, indeed, two distinct species or merely different types of growth of the same organism."

"*Bacillus radiobacter* seems to be regularly present in the root nodules of leguminous plants, stimulating development and activity of the nodule bacteria. On account of its similarity to *B. radicicola*, it has been repeatedly mistaken for the nodule-producing organism in the cowpea-soybean group, whose bacteria it outranks very considerably in the development on the plates made from the nodules. By its brown growth on potato, *B. radiobacter* can be easily differentiated from *B. radicicola."* Address: 1. Soil Biologist, Bureau of Plant Industry, USDA; 2. Prof. of Soils, Univ. of Saskatchewan, Sasaktoon, Sask., Canada.

213. Evans, Arthur T.; Fowlds, Matthew. 1921. Soybeans in South Dakota. *South Dakota Agric. Exp. Station, Bulletin* No. 193. p. 317-24. March.
• ***Summary:*** Contents: Introduction. The plant. Adaptations. Varieties: Manchuria, Manchu, White Eyebrow, Ito San, Black Eyebrow, Bopp, Saskatoon, Ogemaw, Mandarin, Chestnut, Early Brown. Additional varieties tested for hay in 1919 (Table 4): Mammoth Yellow, Swan, Haberlandt, Hollybrook, Mongol, Mikado, Morse, Medium Green, Sable, and Ebony. Note: All of these varieties failed to mature seed. Commercial varieties from O.M. Scott & Sons, Marysville, Ohio.

Culture: Seed bed, time of seeding, method of seeding, inoculation, rate of seeding, cultivation, harvesting. Annual rainfall at the Brookings, Cottonwood, Eureka, Highmore, and Vivian stations.

Tables show yields of soybean varieties for seed, 1914-1920, and yields of soybeans for hay, 1915-1920. "Within recent years the soybean has become increasingly popular in South Dakota. This is probably in part due to a demand for a plant high in protein to be used as a hogging-off crop in corn. Rape may supply this but it lacks one feature which the soybean supplies, namely that of fixing nitrogen."

"The soybean is a relatively new crop in South Dakota... About 30 varieties have been tested at the station at Brookings for one or more years. Those which failed to mature were discarded after the first year." The variety with the highest average yield was Manchuria, introduced from northern Manchuria. Its 7-year average yield was 22.5 bu/acre. Mandarin had 2-year average yield (1919-20) of 28.0 bu/acre, but Manchuria had an average yield of 36 bu/acre for these 2 years.

Note: This is the earliest document seen (Sept. 2004) that mentions the soybean variety Saskatoon–apparently named after the capital of Saskatchewan province in Canada. Address: Brookings, SD.

214. Saskatoon: New Canadian soybean variety. 1921. Seed color: Yellow.
• ***Summary:*** Sources: Evans, Arthur T.; Fowlds, Matthew. 1921. "Soybeans in South Dakota." *South Dakota Agric. Exp. Station, Bulletin.* No. 193. p. 317-24. March. See p. 320 "Table 2: Soybeans for seed." Saskatoon: S.D. No. 888. This variety was planted each year from 1914 (yield: 17.3 bu/acre) to 1918 (19.0 bu/acre). Its 7-year average yield: 13.7 bushels/acre. "Table 3: Soybeans for hay." Saskatoon was planted each year from 1915 to 1918. The best yield, in 1917, was 1.44 tons/acre of hay. Its 4-year average yield: 1.01 tons/acre.

Robertson, D.W.; Kezer, A.; Deming, G.W. 1932. "Soybeans under irrigation in Colorado." *Colorado Agric. Exp. Station, Bulletin* No. 392. 24 p. July. See p. 8, 10. "From tests conducted at Fort Collins, Colorado, it was found that good yields of soybeans could be obtained under irrigation. The following varieties gave the highest yields: Yellow-seeded varieties–Minsoy, Wea, Saskatoon.

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. See p. 7. "Saskatoon–Farmer selection (Canada)."

Bernard, Richard L.; Juvik, Gail A.; Hartwig, Edgar E.; Edwards, Calton J., Jr. 1988. "Origins and pedigrees of public soybean varieties in the United States and Canada." *USDA Technical Bulletin* No. 1746. 68 p. Oct. See p. 30. "Lost old domestic soybean varieties." "Saskatoon–Farmer selection, Canada." Address: USA.

215. Rouest, Leon. 1921. La culture du soja [Soybean culture]. *Bulletin des Matieres Grasses de l'Institut Colonial de Marseille* No. 5&6. p. 73-86. [1 ref. Fre]
• ***Summary:*** Contents: Introduction and about the author (autobiographical). Varieties of soya tested in France (1. Yellow Soy, Early Medium Green, Manchu. 2. Etampes Soy. 3. Black Soy. 4. Very early black soy. 5. Wilson Five {black}, Manchu, Early Medium Green, Virginia. 6. Extra early from Podolia. 7. Very early brown). Soya in the Experimental Farms of Neoculture (Varieties tested: Manchu (yellow seeded), Wilson Five (black), Haberlandt (yellow, but its progeny were green or brown or with a brownish red hilum), Tokio (green; progeny brown or yellow), Virginia (brown; progeny reddish brown, yellow with black hilum, black and yellow, yellow, or green), Hahto (green; progeny black round, brown flat, yellow round with black hilum, reddish brown), Early Medium Green (green; progeny; white or almond)). Planting soya (incl. Mammoth Yellow). Number of heat units required *(degré thermique)* for the germination of soya. Importance of the spacing between plants. Quantity of seed necessary for planting 1 hectare. Soya during its vegetative stage (incl. Buckshot, Ito San, Medium, Meyer, Medium Early Yellow, Mammoth Yellow; the soybean also grows in Tunisia if irrigated). Comparison of the vegetation of soya and of haricot at high altitudes. Rolling the planted seeds and

methods of management. Growth of the soybean plant, and its acclimatization. Enemies of the soybean.

Note: This is the earliest document seen (Oct. 2004) that mentions the soybean variety Early Medium Green. The name is written in English, with no French equivalent. It is mentioned in only 4 documents, three of them by Rouest, all in French and published in France in 1921 and 1922.

In the section titled "Importance of the spacing between plants" is a table (p. 80) showing the spacing (in meters) between plants at locations in Canada for the three years. The earliest years and spacings are as follows: Maritime Provinces, 1899, 0.70 meters. British Columbia, 1899, 0.88. Ottawa [Ontario], 1900, 0.71. Manitoba, 1900, 0.88. Northwest Territories [actually Saskatchewan] 1900 0.88.

The section titled "Rolling the planted seeds and methods of management" (p. 83) states that it is very important to roll the ground with a roller after planting the seeds in order to create contact between the soil and the seeds, so all seeds mature at the same time. The capillarity will be broken by the tongue of the seeding machine.

The section titled "Acclimatization" states (p. 84) that in the Tarn, at the Genetic Institute of Nages, abbot Vieules tested soybeans successfully at 800 meters elevation. In the Montagne-Noire (Aude), Dr. Valette successfully tested the soybean variety Manchu at 600 meters. Address: Directeur des Fermes Expérimentales de Néoculture de France.

216. Larue, Pierre. 1921. La fabrication du lait végetal au Canada [Production of vegetable milk {soymilk} in Canada]. *Vie Agricole et Rurale (La) (Paris)* 19(28):33. July. [Fre]

• ***Summary:*** "In certain countries, vegetable milk has long been used in preference to animal milk. In China, for example, the milk of cows and other animals is never consumed. The people use only soybeans for the preparation of their milk. And this is exactly what some people in Canada propose to do. For the time being, they will import their soybean seeds from China, but they hope that, in the future, soya will be cultivated in Canada. Grown in a rotation on alternate years with wheat, soya will increase wheat yields by 5-7 quintals/hectare. The normal yield of soya in 13-17 quintals/ha. Note: 1 quintal = 100 kg.

Soymilk *(Le lait de fèves de soja)* has been submitted to the most rigorous tests by chefs, bakers, pastry makers, makes of frozen desserts, etc., and they have unanimously recognized that this product (when containing an equal proportion of water) would be superior to cow's milk when considered from every point of view: vitamins, lipids, casein, albumin, carbohydrates, sugar and salts.

"The soymilk will be significantly less expensive than cow's milk."

217. Moderwell, Hiram K. 1921. Milk, flour, bread from a bean, new "manna" found in Vienna: Inventor claims it will do for starving Europe what was done for the Children of Israel in Biblical times. *Toronto Daily Star (Canada).* Sept. 29. p. 13.

• ***Summary:*** London, Sept. 29. This is basically a rewritten version of the following article: *Times* (London). 1921. "'Manna' for the hungry." Sept. 28. p. 11, col. 3.

Reports from Vienna, Austria, describe experiments [by Laszlo Berczeller and colleagues] in which flour, bread and milk are made from the soya bean. "Soya milk costs only one-sixth as much as cow's milk and soya bread is 40 per cent. cheaper than wheat bread." The soya bean, which will be extensively cultivated in eastern and southeastern Europe, is "the only real solution to the problem of reconstruction" of Europe after World War I. Address: Special cable to The Toronto Star and the Chicago Daily News.

218. Grinenco, Ivan; Capone, Giorgio. eds. 1921. Produits oléagineux et huiles végétales: Etude statistique sur leur production et leur movement commercial [Oleaginous products and vegetable oils: Statistical study on their production and trade]. Rome, Italy: Institute Internationale d'Agriculture, Service de la Statistique Générale. xxxii + 421p. See p. XX-XXI, 140-41, 144-47, 442-43, 480-81. Sept. 15. Index in front. [Fre]

• ***Summary:*** In Sept. 1921 the IIA *(Institute Internationale d'Agriculture)* published this monograph in French. Two years later, by popular demand, an updated English-language edition was published. Contents: Introduction. Northern hemisphere: Europe, America, Asia, Africa, Oceania (Hawaii, Guam). Southern hemisphere: America, Asia, Africa, Oceania. Recapitulative tables of commerce, 1910-19. Note 1. All import and export statistics are given in quintals. 1 quintal = 100 kg.

The soybean (introductory information, p. xxii-xxiii, xxxii). Northern hemisphere–Europe. Germany (imports of soybean and soy oil 1910-14, p. 4). Denmark (production of soy oil in 1917, p. 17; imports and exports of soybeans and soy oil 1910-19, p. 18-20). France (imports and exports of soybeans and soy oil 1910-19, p. 28-31). Great Britain and Ireland (treated as one country; imports, exports, and reexports of soybeans and soy oil 1910-19, p. 32-35). Norway (imports of soybeans 1910-19, p. 47). Netherlands (Pays-Bas, imports and exports of soybeans and soy oil 1910-19, p. 49-52). Romania (In 1915 production of soybeans on 3 hectares was 3,600 liters). Russia (in Europe and Asia, imports of soy oil 1909-17, p. 70-71). Sweden (imports and exports of soybeans and soy oil 1910-19, p. 74-76).

Note 2. This is the earliest document seen (Jan. 2009) that gives soybean production or area statistics for Eastern Europe.

America: Canada (imports of coconut, palm, and soy oil {combined} for the production of soap {in hectoliters}

1915-19, p. 88-89). Cuba (various attempts have been made to introduce the soybean, p. 94).

United States (area and production in 1909 {659 ha}, then from 1917-1920, p. 97-98). An overview of soybeans in the USA (p. 103, 105) states that the soybean, known in the USA since 1804, has become of great economic importance during the past few years. It is becoming popular mainly as a forage plant, but also for its seeds, for extraction of oil, and for making other products. Statistics have been published regularly since 1917. The census for 1909 showed 659 hectares cultivated in soybeans. During the years from 1917 to 1919 the cultivated area surpassed 60,000 ha. The three main states for soybean cultivation are North Carolina, Virginia, and Mississippi, which in 1919 cultivated respectively 33,185, 12,141, and 3,238 hectares; this was almost 75% of the total cultivated to soybeans in the USA. In 1910, the seeds were used for the extraction of oil in the USA, and for the first time the seeds were imported from Manchuria. In 1915, domestically grown soybean were used as a source of oil. This industry is developing rapidly, because the extraction of the oil is easily adapted to existing facilities that press oil from cottonseed and linseed. A table (p. 106) shows production of 16 vegetable oils in the USA from 1912 to 1917. Soybean oil production (in quintals) has increased from 12,537 in 1914, to 44,996 in 1916, to 190,843 in 1917. Figures are also given for peanut oil, sesame oil, etc. Other tables (p. 108-10) show imports, exports, and reexports of soybeans and soy oil from 1910 to 1919.

Asia: China (exports of soybeans and soy oil 1910-19, p. 161-62). French Indo-China (overview, esp. Cambodia and Tonkin, p. 187). Japan (area planted and production of soybeans 1877-1919, p. 190; overview, p. 191; production of soy oil 1909-18, p. 192; imports and exports of soybeans and soy oil 1910-19, p. 192-93). Korea (area planted and production of soybeans 1909-1918, p. 194; imports and exports of soybeans and soy oil 1909-11, p. 195). Formosa [Taiwan] (area planted and production of soybeans 1901-06, p. 196; imports and exports of soybeans and soy oil 1909-17, p. 197. In 1901 10,888 ha produced 8,056,400 liters of soybeans. In 1904 21,960 ha produced 24,401,700 liters of soybeans). Note 3. This is the earliest document seen (Jan. 2005) that gives soybean production or area statistics for Formosa (Taiwan; ceded to Japan in 1895 after Japan won the Sino-Japanese War).

Kwantung [Kwantung Leased Territory in Manchuria] (area planted and production of soybeans 1911-17, p. 198. In 1911 14,627 ha of soybeans produced 102,112 quintals. In 1916 29,902 ha produced 153,995 quintals of soybeans).

Africa: Algeria (in recent years, trials have been made to introduce soybean culture to Algeria, p. 238). Egypt (imports of soy oil 1919, p. 244-47).

Southern hemisphere–America: (Note 4. Soy is not mentioned at Argentina, Brazil, or any other South American country). Asia: Netherlands Indies. (A) In Java and Madura, the area planted to soybeans was 162,800 ha in 1916, 175,696 ha in 1917, and 157,844 ha in 1918. Gives imports of soy oil (1,085 quintals in 1914) and exports of soybeans (46 quintals in 1913) (p. 297-98). (B) In outlying territories, gives imports of soybeans from 1913 to 1919 (p. 299). Africa: Southern Rhodesia (attempts have been made to introduce soybeans and several other oil plants from temperate climates, p. 317). Oceania: Soy is not mentioned at Australia, New Zealand, British New Guinea, former German New Guinea [later Papua New Guinea], or any other country in southern Oceania. (p. 297). Recapitulative tables–Imports and exports from 1910-1919. Soybeans, p. 368-69. Peanuts, p. 370-75. Sesame seeds, p. 376-79. Palm fruits *(Amandes de palme,* from which palm oil is obtained), p. 392-93. Peanut oil, p. 414-17. Corn oil, p. 416-17. Sesame oil, p. 418-19. Soy oil, p. 420-21. Other oils covered in detail by this book are: Cottonseed, hempseed, linseed, rapeseed *(colza* and *navette),* poppy *(pavot* or *oeilette),* castor, olive, coconut, palm, and other–non-specified. Address: 1. Doctor of Agronomics; 2. Doctor of Economics. Both: IIA, Rome, Italy.

219. Kellogg, John Harvey. 1921. The soy bean. Composition of the soy bean (Document part). In: J.H. Kellogg. 1921. The New Dietetics: What to Eat and How... Battle Creek, Michigan: The Modern Medicine Publishing Co. 950 p. See p. 299-302. 24 cm.

• ***Summary:*** In the chapter on "Legumes," the section titled "The Soy Bean" (p. 315-21) has the following contents: Introduction and history (incl. a long extract from a publication by W.J. Morse, and discussion of soy beans and diabetic diets). Composition of the soy bean (according to Bailey and Street 1915). Soy bean milk. To fu (tofu). Soy sauce. Soy bean sprouts. Composition of soy bean sprouts compared with mung bean sprouts.

The section begins: "The soy bean has been used in China since 2838 B.C. It was introduced into France in 1740, England 1790, and this country not until a century later. This bean requires a long season and does best in the Southern states on this account. It is quite hardy, however, and some varieties have been found which mature as far north as Canada.

"The soy is the best of all beans. It differs decidedly from other beans in its composition. It contains 40% protein, practically no starch, and nearly 20 per cent fat, giving it characteristics approaching those of the peanut more closely than those of ordinary beans.

"More than one thousand varieties have now been tested by the U.S. Department of Agriculture. Twenty varieties are at the present time being handled by growers and seedsmen in this country. The green and yellow varieties are best adapted for food. The black and brown are chiefly for forage.

"In China, the soy bean is very little used in the manner in which beans are used in this country. Instead, according to W.J. Morse [1918], of the U.S. Department of Agriculture, 'the beans are soaked in water and roasted, the product being eaten after the manner of roasted peanuts.'" Dr. Kellogg then quotes two passages from Morse about the use of roasted soybeans, and of soy beans which, when three-fourths or more grown, can be used as "a most palatable and nutritious green vegetable."

"This bean not only contains a large amount of protein, more than is found in the same weight of beef, but its protein is of a particularly fine quality. Heretofore, the casein of milk has enjoyed a unique reputation as a protein of finest quality, but now 'the protein of the soy bean appears to be as valuable as the casein of milk.' In view of the shortage of milk, which is likely to increase, it is gratifying to know that a protein has been discovered equally valuable as casein, and one which may be produced in unlimited quantities.

"For promotion of growth, it is not only necessary for the food to contain 'complete' protein in proper amount, but it must also contain a sufficiency of the two vitamins, designated as fat-soluble A and water-soluble B. Osborne and Mendel demonstrated that the soy bean contains an adequate supply of both fat-soluble and of 'water-soluble vitamins,' in which respect it is superior to all seeds heretofore examined, with the possible exception of flaxseed and millet.

"The soy bean is destined to become one of the great food staples, not only of this country but of the world. It is capable not only of supplying the essentials for growth and maintenance, but may also act as a complement to other imperfect foods, such as corn for example, in combination with which it has shown most excellent experimental results.

Composition of the soybean: A table shows the composition of the soy bean, compiled from various sources. "The above analysis clearly shows the soy bean to be a most remarkable food product. Its composition is in some respects more like that of a nut than that of other legumes. In this respect it very much resembles the peanut. Its protein content, nearly 40 per cent, is higher than that of any other foodstuff. Even lean meat affords but half as much. Its high percentage of fat gives it a very high food value and makes it a rich source of oil for various industrial purposes as well as for food.

"The soy fills the place of meat as well as milk in the dietary of many millions of sturdy Orientals. Since the composition of the soy has been understood, it has been much used as a food for diabetics. It is evident from the above [table] that it contains little which can be objectionable in diabetes. The small amount of dextrin and sugar may be easily removed, when necessary, by parboiling.

"Experiments by Holmes [1920], of the office of Home Economics, U.S. Department of Agriculture, have shown that the well cooked soy bean (cooked for two hours under steam pressure) is very easily digestible, and is an exceptionally wholesome article of food, superior to most other legumes.

"The soy bean may not become really popular until the pressure cooker comes into general use, which may be some time. In the meantime, while the patent pressure cooker is coming, any resourceful housewife may improvise a perfectly good and satisfactory pressure cooker from inexpensive materials close at hand. Get a stone jug or jar that can be hermetically sealed. The little stone jars in which apple butter is sometimes sold are well adapted to the purpose. After soaking the beans over night put [them] in the jug with a little salt and enough water to cover, seal up tight and secure the cover well, remembering that the pressure will be from within. Set the jug in a saturated solution of common salt, place over a smart fire and boil for one to two hours. The salt solution boils at a temperature of 220ºF. and so the beans are exposed to a higher temperature than in ordinary boiling... Cooking at the higher temperature not only softens the cellulose and so renders the foodstuffs tender, but greatly improves the flavor.

Note: This is the earliest document seen (Sept. 1996) that uses the term "pressure cooker" in connection with soy beans. Address: Battle Creek, Michigan.

220. Rouest, Leon. 1921. Le soja et son lait végétal: Applications agricoles et industrielles [The soybean and its vegetable milk. Agricultural and industrial applications]. Carcassone (Aude), France: Lucie-Grazaille. 157 p. Illust. No index. 25 cm. [42 ref. Fre]

• ***Summary:*** Contents: Introduction–What is soya? 1. History of the dissemination of soya: In 1712 the naturalist Kaempfer introduced soya, introduction of soya to France and Europe, soya is cultivated in Austria in 1875 by Prof. Haberlandt, soya is the object of many trials in France from 1876 to 1881, the study and acclimatization of soya becomes widespread, the causes of setbacks in the cultivation of soya.

2. Cultivation of soya: Botanical characteristics of soya, the varieties of soya, Chinese varieties and soya in China, Japanese varieties and soya in Japan, American varieties and soya in America (varieties: Mammoth, Hollybrook, Ito San, Guelph, Haberlandt, Medium Yellow, Wilson, Peking, Tokio, Mandchu [Manchu], Black Eyebrow, Barchet), soya in Europe–France and Italy, seven varieties of soya tested in France, soya in the experimental farms for new crops *(les Fermes Expérimentales de Néoculture;* Many varieties from the USA were tested, including Manchu, Wilson Five, Haberlandt, Tokio, Virginia, Hato [Hahto], Early Medium Green), the cultural and geographical appearance of soya, its production worldwide, planting soybeans, heat units

*(degré thermique)* and the germination of soya, the importance of spacing between plants, number of seeds per hectare, soya during its vegetative stage, the vegetation of soya compared with that of the haricot at high altitudes, rolling the seeds and types of crop maintenance, growth of the plant, acclimatization, the enemies of soya.

3. Composition of the soybean plant. 4. Soya forage: Green soya forage, soya hay, soya as a plant for soil improvement. 5. Harvesting soybean seeds: Maturity of the seed, harvesting soya, the food value and composition of soya seeds. 6. Soya as an oil plant: Richness in oil, defatted soybean cake, imports and exports of soya cake from 1915 to 1919 (Imports to: Sweden, Canada, Korea, Japan, Formosa. Exports from: England, China, Korea), production of soya cake from 1915 to 1919 (Denmark, Great Britain and Ireland, Netherlands, Sweden, USA, Japan, Formosa, Korea, Java and Madura).

7. Soymilk: Its manufacture (in 1910-1913 Li Yu-ying installed a factory named "La Caséo-Sojaïne" at Valées {Asnière-Seine} near Paris. Rouest visited this factory and saw them make soymilk, which was filtered using a filter-press resembling those used in sugar refineries), its properties and composition, composition compared to other types of milk, powdered soymilk, soymilk in the nursing and feeding of animals, soymilk related to tuberculosis in animals and in humans, soymilk would allow the milk and butter from animals to be reserved exclusively for human foods and could be used for raising many piglets, manufacture of non-dairy milk in Canada (a factory is now under construction). 8. Soya in Industry: Soymilk and soy casein, Sojalithe (like Galalithe).

9. Soya in human nutrition: Soy flour and its applications (incl. Li Yu-ying's usine de la Caséo-Sojaïne, and bread made of soya and wheat), soya compared to dry legumes (such as lentils, haricots, peas, beans), soya used as a legume (whole soybeans), the food value of soy sprouts, preserves and confections made from soya, soya chocolate and coffee, the amount of nutrients produced by soya and other crops from a unit of land, a meal of soya served in France (prepared and served some years ago by Li Yu-ying's soyfoods plant La Caséo-Sojaïne for the major print media, the medical press, the National Society for Acclimatization, etc.; it consisted of 2 soups {one with 'soya meat' and one with soymilk}, 2 entrees {an omelet with smoked soya ham, and fritters stuffed with soy meat}, soy [actually mung bean, *lüdou]* sprouts in a salad and sauteed, 3 desserts {soya cake, biscuits, and confection}, and soy coffee; a recipe for each is given; soya meat is smoked tofu).

10. Use of soya in East Asia: Tofu *(fromage végétal),* soy-based condiments (such as natto {Ping ming Natto and Tokio-Natto}, miso, Chinese miso or tao-tjiung [doujiang], and shoyu {Soyou or Schozou}), making soy sauce in Kwantung, China (from Groff).

11. The opinions of several authors concerning soya (from the French medical and hygienic press): Introduction–E. Maurel. Soya and soy bread in diabetic diets–Dr. Dujardin-Beaumetz, Dr. Bloch, Dr. J. Le Goff, L. Beille, M. Gautier. Soya used as a bean–M. Gautier. Soy sauce used in place of meat extracts. The state of cheese. The popularization of soya in Europe–A. Paillieux.

Conclusions: The influence of cultural technology on variation. Appendix: Advice to experimenters on the acclimatization of soya in France. Other methods of obtaining early-maturing soybeans.

The author concludes (p. 140): We must make every effort to acclimatize soya in France. We must develop the will and learn from past mistakes. Most soybean varieties now available in France are too late. We must get varieties from Manchuria, whose climate is similar to that of southeastern France, and from the northeastern USA. It is urgent that, in the near future, we start a Soybean Experiment Station to take responsibility for this work. The setbacks since 1830 can be overcome by present science and genetics. The first step is to introduce better varieties.

On the last page is a full-page advertisement for various seeds sold by Mr. Rouest, including 30 varieties of soybeans *(Soja hispida);* the names of the individual varieties are not given.

Illustrations show: (1) A soy bean plant with many pods (title page). (2) Flowers and pods of the soy bean plant (p. 29). (3) Soy pods and beans (p. 30). (4) A soy bean plant drawn by a Chinese artist (p. 32, from Li Yu-ying). (5) Pods of the Hato [Hahto] variety of soy bean (p. 51). (6) Germinating soy bean seeds (p. 54, from Li Yu-ying). (7) Soy bean roots with nodules (from a photo by Dr. Le Goff; p. 73). (8) Soy bean pods, opened to show 3 beans in each (p. 82).

Tables show: (1) Production of soybeans by color in China in 1916 and 1917 (p. 35, in quintals, from the International Yearbook of Rome, Vol. 1, 1919): In 1917: Yellow 4,069,822. Other 953,012. Green 181,190. White 71,234. Black 40,066. Total: 5,315,324.

(2) Percentage composition of various oilseed cakes (p. 95, from Kellner). (3) Imports and exports of soybean cake, by country, from 1915 to 1919 (in quintals, p. 96). Imports are given for Sweden, Canada, Korea (from 1916), Japan, and Formosa [Taiwan]. Exports are given for England (6 quintals in 1915), China (including Manchuria, by far the biggest exporter, from 1916), and Korea (from 1916).

(4) Production of soybean cakes, by country, from 1915 to 1919 (p. 97, in quintals, based on statistics from the International Bureau of Agriculture, Rome, 1919). In descending order of production in 1915 (in quintals): Japan 5,439,337. Korea 3,209,238. Great Britain and Ireland: 1,513,059. Denmark 921,782. Java and Madura 503,025. Note that China is not listed. Netherlands 144,523. Formosa [Taiwan] 62,131. Sweden 1,733. USA 0, but 501,822 in

1916. Address: Directeur des Fermes Expérimentales de Néoculture, Carcassonne (Aude), France.

221. Inglis, R.A. 1922. Nitro-cultures and their distribution. *Agricultural Gazette of Canada (Ottawa)* 9(1):14-17. Jan/Feb.
• ***Summary:*** In 1915, the Central Experimental Farm in Ottawa began the free distribution of nitro-cultures throughout the Dominion of Canada. All the legumes that grow in Canada, with the exception of the soy bean, live symbiotically with the soil bacterium named *Bacillus radicicola.* The soy bean, *Glycine hispida,* is inoculated by a different organism, probably a *Pseudomonas* (Lörnis and Hansen, Jan. 1921), still under observation. Address: B.A., Junior Botanist, Central Experimental Farm [Ottawa, Ontario, Canada].

222. Arnolds. 1922. The markets that set the pace (Ad). *Toronto Daily Star (Canada).* Aug. 24. p. 16.
• ***Summary:*** "Holbrook's Worcestershire Sauce. Imported bottle 25¢."

223. Campbell, J.T.; Squirrell, W.J. 1922. Soybeans in Ontario (Letter to the editor). *Breeder's Gazette* 82(20):641. Nov. 16.
• ***Summary:*** In this first of two letters to the editor, Campbell (of Illinois) writes: "It is only within the past ten years that the soybean has become a crop of importance in the United States, and about three years ago [i.e., about 1919] its cultivation began in Canada."' Jeffrey Bros., and the Broadfield Stock Farm, near Whitby, Ontario, Canada cultivated nearly 100 acres of soybeans this year. People are growing soybeans in a commercial way in Canada. Climatically soybeans have about the same adaptations as corn. They are more drought-resistant and less sensitive to an excess of moisture. They will thrive on soils too acid for the successful growth of red clover, and provided the seed has been inoculated, on poorer soil than corn requires.

Many appetizing dishes served in Chinese restaurants are made from soybeans. "Cooked as we cook navy beans, they are a failure. They must be prepared and served differently. Ground soybeans served as a loaf can scarcely be distinguished from meat loaf. As flour they make tasty and nutritious muffins, especially valuable for diabetics."

In this second letter, Squirrell (of Ontario Agricultural College) writes: "... soybeans have been grown for fodder and seed production at the Provincial Experiment Station at Guelph, Ontario, [Canada], since 1894, and been distributed through the Ontario Agricultural and Experimental Union to farmers in Ontario each year for the past twenty-three years... The most promising varieties which have been tested at Guelph are the O.A.C. No. 211, the Ito San, the Minnesota No. 167, the Early Brown and Early Yellow.

"The chief weakness in soybean growing in Ontario is the lack of varieties maturing early enough to produce seed, and at the same time, a sufficient quantity to make them profitable to grow. Recognizing this fact, we have carried on considerable plant breeding work with this crop. The O.A.C. No. 211, which was originated at Guelph, and which has been grown by a number of farmers, seems to be a variety which will reach maturity in many sections in Ontario, and at the same time is a large yielder."

Note 1. This is the earliest document seen (Feb. 2010) that gives soybean production or area statistics for Canada; nearly 100 acres of soybeans were cultivated this year on two farms. "People are growing soybeans in a commercial way in Canada."

Note 2. This is the earliest document seen (Jan. 2010) that mentions the soybean variety O.A.C. 211; it was developed at the Ontario Agricultural College in Guelph, Ontario, Canada. Address: 1. Cook County, Illinois; 2. Ontario Agricultural College [Guelph, Ontario, Canada].

224. O.A.C. No. 211: New Canadian domestic soybean variety. 1922. Seed color: Yellow.
• ***Summary:*** Sources: Campbell, J.T.; Squirrell, W.J. 1922. "Soybeans in Ontario." *Breeder's Gazette* 82(20):641. Nov. 16. Squirrell (of Ontario Agricultural College) writes: "The most promising varieties which have been tested at Guelph are the O.A.C. No. 211, the Ito San, the Minnesota No. 167, the Early Brown and Early Yellow.

"The chief weakness in soybean growing in Ontario is the lack of varieties maturing early enough to produce seed, and at the same time, a sufficient quantity to make them profitable to grow. Recognizing this fact, we have carried on considerable plant breeding work with this crop. The O.A.C. No. 211, which was originated at Guelph, and which has been grown by a number of farmers, seems to be a variety which will reach maturity in many sections in Ontario, and at the same time is a large yielder."

Zavitz, Charles A. 1924. "Soy beans." *Ontario Department of Agriculture, Circular* No. 43. 4 p. Jan. A table (p. 2) "gives the average results in yields of green crop and of threshed seed per acre for each of eleven varieties of soy beans for the years 1921 to 1923, inclusive." The varieties are listed in descending order of seed yield: O.A.C. No. 211 (23.84 bu/acre), Tsurunoko (23.59), Minnesota No. 167 (23.39), O.A.C. No. 111 (23.26),... "The O.A.C. No. 211, which stands highest in average yield of seed per acre [23.84 bu/acre] and in weight per measured bushel and second highest in yield of green crop per acre [7.92 tons] has been grown in the plots for five years, but in only the last three of these has it been included in the regular variety tests."

Zavitz, C.A. 1927. "Forty years' experiments with grain crops." *Ontario Department of Agriculture, Bulletin* No. 332. p. 36-87. Oct. See p. 84-86. The variety O.A.C. No.

211 has the highest average seed yield. "In 1918, thirty-four special plants were selected from about ten thousand plants of the Habaro No. 20405 variety. Of the thirty-four selected plants the progeny of twenty-two were carefully tested under uniform conditions in 1919 and in 1920. In the two years' results the progeny of one of the plants gave higher results than that of any of the other twenty-one plants in weight per measured bushel and in yield of both straw and of beans per acre. This outstanding performer was transferred to the regular test plots in the spring of 1921 and has since been grown with all other varieties under the name of O.A.C. No. 211. This variety has now been accepted as eligible for registration by the Canadian Seed Growers' Association. It is the only variety of soy beans which has been so honoured."

MacConkey, C.A. 1935. "Soybeans." Ottawa, Canada: Div. of Research Information, National Research Council, Ottawa. 93 p. March. See p. 59 of this report. "Varieties suitable for Canada: Besides O.A.C. 211 which is the one outstanding variety that has shown itself suitable for cultivation in Canada albeit only in southern Ontario, a number of other varieties have been tried and experimented with such Mandarin, Manchu, Wisconsin Black, Quebec 92, Quebec 537, Early Yellow, Early Brown, and Manitoba Brown, but none of these have been very satisfactory."

McRostie, G.P.; Laughland, J. 1940. "Soybeans in Ontario." *Ontario Department of Agriculture, Bulletin* No. 407. 12 p. Feb. See p. 11. Description of varieties: "O.A.C. No. 211. An O.A.C. selection from the Habaro variety. It is a popular variety in Ontario. Seed buff yellow, medium size; hilum yellow; plant erect, medium short, bushy; flower purple. A good yielder of both fodder and seed, suitable for grain production in the longer season sections and for fodder in most sections of Ontario."

Dimmock, F. 1941. "Canada includes many excellent soybean acres." *Soybean Digest.* May. p. 5. "An active soybean research program has already resulted in the development of the following varieties:... and O.A.C. 211 and Goldsoy by the Ontario Agricultural College, Guelph."

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 6. "O.A.C. 211–Canada Experiment Station."

Tanner, J.W. 1973. "Where we are and how we got there: An historical review of soybean production in Ontario." "In 1924, Zavitz released OAC 211, the first variety of soybeans registered by the Canadian Seed Growers' Association. The variety continued as one of the recommended varieties until the mid 40's."

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 14-15. OAC 211 is in the USDA Germplasm Collection. Maturity group: I. Year named or released: by 1928. Developer or sponsor: Ontario Agricultural College, Guelph, Ontario, Canada. Literature: 13. Source and other information: Selected from 'Haboro.' Prior designation: None.

McEwen, Freeman; Morrison, Douglas; Rennie, Clare; Tanner, Jack. 1999. *125 Years of Achievements: OAC–A Proud Tradition, an Exciting Future, 1874-1999.* Guelph, Ontario, Canada: University of Guelph. 132 p. See p. 56, titled "OAC 211 Soybean." On August 26, 1925, OAC 211 became the first soybean variety registered in Canada. Address: Ontario, Canada.

225. *Quebec Daily Telegraph (Canada).*1923. Chop suey. Jan. 29. p. 4.
• ***Summary:*** This recipe, by Bertha E. Shapleigh, of Columbia University, calls for "2 tablespoons Soyu Sauce."

In the instructions is a section which reads: "Soy bean sauce: The Shoyu or Soyu Sauce is the Worcestershire of China. It is made from the soy bean and gives the characteristic flavor found in Chinese food. If it cannot be purchased, use Worcestershire, one tablespoon, and a little sauce. The Soyu sauce is salty and where used, no other salt is required."

226. Burkholder, Walter H.; Hawley, I.M. 1923. Diseases, and insect and animal pests, of the field bean in New York. *Cornell Extension Bulletin* No. 58. 38 p. Feb.
• ***Summary:*** Discusses *Plathypena scabra* (green clover worm), life history and habits, chemical control using acid lead arsenate. Pages 35-36 note that in mid-1919, for some reason that is not well understood, there was a severe outbreak of green clover worms, which were abundant "in the bean and soybean fields from Georgia to Canada. The bean foliage was often entirely destroyed by these pests, as they fed concealed from view, on the undersides of the leaves... In 1920, they did not injure beans in New York.

"The green clover worm, when it is a pest of beans, may be readily controlled by spraying the plants with 1 pound of arsenate of lead (powdered) to 50 gallons of water, of by dusting the foliage with a mixture of 1 part arsenate of lead (powdered) and 8 parts lime." Address: Ithaca, New York.

227. Piper, Charles V.; Morse, William J. 1923. The soybean. New York, NY: McGraw-Hill Book Company, Inc. xv + 329 p. Feb. Illust. Index. 24 cm. Reprinted unrevised in 1943 by Peter Smith Publishers, New York. [563 ref]
• ***Summary:*** This is the first comprehensive book about the soybean written in English, and the most important book on soybeans and soyfoods written in its time. Contains an excellent review of the world literature on soybeans and soyfoods with a bibliography on soy that is larger than any published prior to that time (563 references), a good

description of the present status of the soybean worldwide based on the authors' extensive contacts, and a great deal of original information. It quickly became a key source for people and organizations working with soybeans and soyfoods in all countries, and a major factor in the expansion of the soybean in the western world. Because of its scope and influence, Soyfoods Center considers the year of its publication to mark the end of the "Early Years" of the soybean worldwide. It remained in print until about 1986.

Contents: Preface. 1. Introduction: Name of the plant, origin, literature, use by the Chinese and Japanese, present importance, future prospects in the U.S., recognition of the possibilities. 2. The commercial status of the soybean: Manchuria and China, Japan, Europe, U.S., other countries, summary of imports and exports of soybeans and soybean oil. 3. Botanical history of the soybean: History prior to Linnaeus' "Species Plantarum" 1753, Linnaeus' misunderstandings of the soybean, Prain's elucidation, other and the correct botanical name.

4. Agricultural history of the soybean: Vernacular names of the soybean, China, Korea, and Japan, India and neighboring regions, Cochin China, Malayan region, early introduction into the United States, later U.S. introductions, the early introduced varieties (grown in the USA by 1898– Ito San, Mammoth, Buckshot, Guelph or Medium Green, Butterball, Kingston, Samarow, Eda, Ogemaw or Ogema), soybean in Europe, varieties grown in Europe and identification, Hawaiian Islands, Australia, Africa, Argentina (p. 50), Canada ("Soybeans are grown in very small quantities in Canada and then usually as a forage crop"), Philippines, Egypt, Cuba (p. 52), British Guiana, Mauritius (p. 53), present culture distribution. 5. Culture of the soybean: Climatic adaptations, soil preferences, water requirement, preparation of seed bed, time of planting, methods and rate of seeding, seeding for pasturage, depth of seeding, inoculation, fertilizer reactions, cultivation, soybeans in mixtures (with cowpeas, sorghums, Sudan grass, Johnson grass, millet, corn, or sunflowers and corn).

6. Harvesting and storage of soybeans: harvesting soybeans for hay, silage, for the seed, seed yields, proportion of straw to seed, storing seed, separation of cracked from whole soybean seed, viability of soybean seed, pedigreed, inspected, registered, and certified seed. 7. Composition of the soybean: Proportions of stems, leaves and pods, composition of plant and seed, nutritive and mineral constituents, forms of nitrogen in soybean nodules, factors affecting oil content of seed. 8. Utilization of the soybean: Diversity of uses (a chart, p. 129, shows 59 products that can be made from soybean seeds, and 6 more that can be made from soybean plants), soybeans for green manure, pasturage, soiling, ensilage, hay, straw.

9. Varieties: Japanese, Manchurian, botanical classifications, vital characteristics, descriptions of important varieties, key for identification, breeding and improvement, genetic behavior, oil content.

10. Structure of soybean seeds. 11. Soybean oil: Methods of extraction [Manchurian, and solvent], American oil mills, methods of shipping and marketing, prices, utilization in soap manufacture, food, paint manufacture, miscellaneous. 12. Soybean cake or meal: Feeding value, composition, use for feeding for dairy cows, cattle, swine, sheep, poultry, digestibility, injurious effects, fertilizer.

13. Soybean products for human food: Food value of the soybean, digestibility of the soybean and its products, mature or dry soybeans, immature or green soybeans (a "nutritious green vegetable"), soybean flour, digestibility of soybean flour, soybean bran (p. 225-26), soybean sprouts, soybean coffee, soybean or vegetable milk [soymilk] (preparation, composition, residue from the manufacture of vegetable milk [okara], utilization of soybean milk, condensed vegetable milk, vegetable milk powder, fermented vegetable milk), vegetable casein, tofu or soybean curd (names and brief history, method of manufacture, coagulating agents, manufacturing yields, digestibility, utilization of bean curd and manufactured products, bean curd brains or *tofu nao,* dry bean curd or *tofu khan,* thousand folds *{chien chang tofu},* fried bean curd *{tza tofu},* Fragrant dry bean curd *{hsiang khan},* frozen tofu *{kori tofu},* Chinese preparation, various dishes), natto, hamananatto [hamanatto], yuba, miso, shoyu [soy sauce], confections. 14. Table dishes of soybeans and soybean products: mature or dry beans, flour, tofu, sprouts (86 recipes). 15. Enemies of the soybean: bacterial, mosaic, fungous [fungus], and nematode diseases, insects, rodents. This last chapter is a comprehensive review of the literature on soybean diseases and insects published before 1922.

The Preface begins: "The soybean, also known as soya or soja bean, has assumed great importance in recent years and offers far-reaching possibilities of the future, particularly in the United States. It is, therefore, desirable to bring together in a single volume the accumulated information concerning this crop...

"The aim has been to present the information so as to make it useful from both agricultural and commercial standpoints, not omitting, however, much that is mainly of historical or botanical interest..."

The introduction begins: "There is a wide and growing belief that the soybean is destined to become one of the leading farm crops in the United States."

Note 1. C.V. Piper lived 1867-1926. Note 2. This is the earliest English-language document seen (July 2003) that uses the term "soybean bran" to refer to soy bran.

Note 3. This is the earliest document seen in which Piper or Morse describe natto, Hamananatto [Hamanatto], yuba, or miso.

Note 4. This book was published by March 1923 (See *Ohio Farmer,* 10 March 1923, p. 313). Address: 1.

Agrostologist; 2. Agronomist. Both: United States Dep. of Agriculture, Washington, DC.

228. Piper, Charles V.; Morse, William J. 1923. Soybeans in Canada (Document part). In: Piper and Morse. 1923. The Soybean. New York: McGraw-Hill. xv + 329 p. See p. 50.
• ***Summary:*** "Canada: Soybeans are grown in very small quantities in Canada and then usually as a forage crop. Experiments have been carried on by the Ontario Agricultural College for several years. About 20 varieties have been tried, but most require too long a season to mature. The very early maturing varieties and selections from these have been quite thoroughly tested in cooperative experiments as reported by Zavitz (1916). The Early Yellow (Ito San) variety has given an average of 15 bu to the acre for the past 15 years. The average yields of twelve varieties grown in competition for the past 5 years at the Ontario Agricultural College are: O.A.C. No. 111, 15.8 bu; Buckshot, 15.8 bu; Habaro, 15.7 bu; Chernie, 15.5 bu; Brown, 15.3 bu; Quebec No. 92, 14.8 bu; Early Yellow (Ito San), 14.2 bu; Quebec No. 537, 13.6 bu; O.A.C. No. 81, 13.4 bu; Ito San, 13.3 bu; and Medium Green (Guelph) 6.2 bu."

229. Loblaw Groceterias Co., Limited. 1923. Proof: That our modern system pleases the careful buyer is the large crowds that throng our 17 busy groceterias each week (Ad). *Toronto Daily Star (Canada).* Oct. 11. p. 6.
• ***Summary:*** "Harvey's Worcestershire Sauce bottle 11¢."

"We sell for less." The address of each of the 17 groceterias is given.

230. Ajax, -. 1923. People I have met: Dr. Charles A. Zavitz. *Canadian Countryman (The)* 12:6, 24. Oct. 13.
• ***Summary:*** An excellent biography of Dr. C.A. Zavitz. Dr. Charles A. Zavitz may be considered to be the "Father of the Ontario Agricultural College," for "he has the longest record of continuous service of any member of the present college staff. So long and so valuable have his services been to the College and to the country that you can hardly separate them... Mention the College and you think of Zavitz."

After graduating from OAC in 1888 he spent some time at the Ohio Summer School of Agriculture. In 1893 he became director of the Experimental Department of the OAC.

"Nearly twenty years ago one of Canada's leading dailies had this to say of Dr. Chas. A. Zavitz: 'One of Ontario's greatest benefactors, who, by the successful carrying out of a single experiment, has raised the product of Ontario farms over $1,000,000 in value.'

"What would be said of him to-day if the value of his work in experiment and investigation could be epitomized in one sentence as above?" He is not the kind of man who is content to rest on his laurels. "He has kept at it during the intervening years, increasing the value of his services and piling up the debt which we as a people and as a country owe him."

No one "in service for agriculture in this country has more to his credit in successful results achieved and in direct value in dollars and cents to the man on the land, than Dr. C.A. Zavitz."

"A leading authority on this subject stated some years ago that Dr. Zavitz has done more to pave the way for the practical nature study than any other man in Ontario. The real basis of nature study in schools is experiment or demonstration. The school garden is a miniature experimental plot...

A portrait photo shows Dr. Zavitz.

231. *Estestvoznanie i Geografia (Natural Sciences and Geography).*1923. [Soya milk]. 8(1-2):62-63. Sept/Oct. [Bul]*
• ***Summary:*** This editor's note discusses a soya milk production plant in Hamilton, Canada. Address: Bulgaria.

232. Kikkoman. 1923-1954. [Monthly and annual soy sauce exports from Japan (1923-54)]. Noda: Kikkoman. Statistical tables. 22 p. [Jap; eng+]
• ***Summary:*** In 1923, some 11,720 *koku* of shoyu [soy sauce], worth 799,022 yen, were exported from Japan. (Note: 1 koku = 180 liters or 47.6 gallons). Of this, 5,307 koku went to the USA and Hawaii (3,330 koku to the USA), 709 koku to Canada, 5,108 koku to Asia (incl. 2,311 koku to Canton and 1,447 koku to China), and 201 koku to Europe. In 1924 total exports increased to 13,149 koku.

A table shows Kikkoman's exports of shoyu by country from 1938 to 1944. In 1938 Kikkoman exported 80 tonnes (metric tons) of shoyu to Peru and Argentina. In 1939, the peak year, 10,658 tonnes were exported; of this 4,444 tonnes (41.7% of the total) went to the USA and Hawaii, 2,680 tonnes went to Manchuria, and 2,098 tonnes to China.

Another table shows total Japanese exports of shoyu by country from 1938 to 1944. In 1939, the peak year, 34,838 tonnes (metric tons) were exported; of this 4,351 tonnes (12% of the total) went to the USA and Hawaii, 293 tonnes went to Canada, 50 tonnes to South America (Peru and Argentina), 63 tonnes to Europe (Holland), and 30,081 tonnes to Asia (incl. 9,550 tonnes to Karafuto, 5,803 tonnes to Taiwan, 4,620 tonnes to Manchuria, 4,295 tonnes to China, and 1,336 tonnes to the Philippines).

Another table shows exports of shoyu from Japan after World War II (1949-1954) to various countries and regions by Kikkoman and by all Japanese shoyu makers. Roughly 85% of Japan's exports were by Kikkoman. The total increased from 6,066 koku in 1949 to 9,316 koku in 1954; of the 1954 figure, 7,009 koku went to the USA and 1,476 koku to Asia. Another table shows exports of shoyu from

Japan to major cities from 1949 to 1954 by Kikkoman and by all of Japan. In 1954, worldwide, the cities receiving the most shoyu were: San Francisco 2,033 koku, Honolulu 1,926 koku, Los Angeles 1,504 koku, Okinawa 1,376 koku, Guam 647 koku, Vancouver (BC, Canada) 414 koku, New York 381 koku, Seattle (Washington state) 290 koku. Address: Noda, Japan.

233. Campbell, Persia Crawford. 1923. Chinese coolie emigration to countries within the British Empire. London: P.S. King & Son, Ltd. xxiii + 240 p. Preface by the Hon. W. Pember Reeves. 22 cm.

• ***Summary:*** Discusses the background of the terrible coolie trade and the use of indentured coolie servants and the credit-ticket system. It was largely a veiled slave trade, and the traffic was greatest from 1845 to 1877. Most of the migration was from Kwangtung province in southern China, an area gripped by famine, feud, and economic hardship. The coolie trade was active in different countries at different times: British Malaysia (1877-1916), the USA (1850-1882), British Columbia, Canada (1880s), Australia (1855-1888), Cuba (1870s), British West Indies (1852-1860s), Transvaal, South Africa (1904-1909).

Note: Though soybeans are not discussed in this book, some of these Chinese may have taken soybeans with them to foreign countries.

The author was born in 1898. This is No. 72 in a series of monographs titled "Studies in Economics and Political Science" by writers connected with the London School of Economics and Political Science. Address: British Fellow Bryn Mawr College, Bryn Mawr, Pennsylvania.

234. Capone, Giorgio; Grinenco, Ivan; Costa, Mario. eds. 1923. Oleaginous products and vegetable oils: Production and trade. Rome, Italy: International Institute of Agriculture, Bureau of Statistics. 545 p. See p. XX-XXI, 140-41, 144-47, 442-43, 480-81. No index. 24 cm. [Eng]

• ***Summary:*** In Sept. 1921 the IIA published a monograph on this subject in French. By popular demand, this English edition was published 2 years later. Contents: Introduction (p. VII-XXXII): General scope, general survey of the 9 principal crops (including soya beans) plus others, final points of consideration. Part I (p. 1-402) is an analysis by region, and within each region by country, countries of vegetable oil production and trade. Regions are Europe, North and Central America, South America, Asia, Africa, and Oceania.

Major countries: Denmark (p. 20-23; oil production 1916-1921, oil imports 1910-1922). France (p. 26-34). Germany (p. 35-40). Great Britain and Ireland (p. 41-43). Netherlands (p. 65-68). Norway (p. 69-70). Russia–European and Asiatic (p. 84-93). Sweden (p. 100-03). Canada (p. 111-15). United States (p. 131-47). Argentina (p. 179-85; no soy). Brazil (p. 187-90; no soy). Ceylon (p. 218-21; no soy). China (p. 222-26). Dutch East Indies (Java & Madura, Other islands; p. 229-33). Formosa (p. 238-39; gives soybean production and acreage from 1900 to 1921). Japan (p. 259-64; gives Japanese soybean production and acreage from 1877 to 1921, and production of soya oil from 1909 to 1920. Japan's leading oil produced domestically from 1895 was rapeseed oil). Korea (Chosen, p. 265-67). Kwantung Leased Territory (p. 268). Hawaii (p. 388; Hawaii produced 17 long tons of soybeans on 20 acres in 1909, and 10 tons on 15 acres in 1919).

Part II (p. 403-506) is recapitulatory tables for both soya beans and soya bean oil: Area and production by crop (1909-1922), Trade by crop (1909-1921). Cottonseed (p. 410-11). Linseed (p. 414-15). Soya beans (p. 442-43, 480-81).

Pages XX-XXI state: "In the absence of data from China, the chief grower of soya beans, it is impossible to make even the roughest estimate of the world's yield of this product. Among the few countries of any moment as producers of soya beans, we may mention: Japan, where this crop increased rapidly between 1877 and 1887 and then became nearly stationary at about 500,000 long tons [2,240 lb per long ton] per annum, although in the last few years some further increase has been noticeable; Korea, with a continuous increase in area and yield, from 1910 onwards, (the crop of 1920 was about 600,000 long tons); and United States, where from 1909 to 1921, the area under soya beans increased from about 1,600 to 186,000 acres with a production of about 70 thousand long tons. It may be observed that the increase of this crop during the last twenty years is supplemented by attempts already made and in progress for its introduction into countries with a favourable climate, especially into Africa."

"Exports are exclusively from China and Korea. The Chinese exports have increased very greatly during the last thirty years. Before 1890 they were insignificant, in 1901 they had reached a total of more than 100 thousand tons, and during the decade from 1909 to 1918 they averaged about 600 thousand tons and reached their maximum in 1919 with about 1 million, declining in the two following years to 600 thousand long tons.

"With regard to Korea although we have not a complete series of data for the period 1909-1918, the ever-increasing importance of its exports of soya beans may be emphasized; during the last few years these have been double the average of the years 1909-1911, and in 1921 they already equalled one third of the Chinese exports."

"The chief importers, in Europe are Great Britain, Denmark, and Holland, and, in Asia, Japan, and the Dutch East Indies. To these must also be added Russia-in-Asia as the Chinese Customs register large exports destined for the Russian Pacific ports."

"England, which at one time constituted the greatest market for the soya bean, has continually reduced its

imports: these were 420 thousand long tons in 1910, 76 thousand in 1913, and about 60 thousand in the two years 1921-1922... In the Asiatic market, represented in this case by Japan and the Dutch East Indies, imports have continuously increased especially in the last few years of the period under consideration.

"The trade figures of *soya oil* (see tables on pages 480 and 481) indicate that China is the principal exporter, having quadrupled its shipment during the period from 1914 to 1919, attaining in the latter year a total of over 140 thousand long tons."

Other countries unrelated to soy (some no longer in existence): Europe: Esthonia [Estonia], Luxemburg [Luxembourg], Serb-Croat-Slovene State. North and Central America: British Honduras [named Belize after about 1975]. South America: Curaçao [Curacao], Falkland Islands, British Guiana, French Guiana. Asia: Aden [became part of independent Yemen in 1967], Andaman and Nicobar Islands, Bahrein Islands [Bahrain], Borneo (British Protectorates), Dutch East Indies, Federated Malay States, Formosa, French Settlements in India, Indo-China, Persia, Portuguese India [annexed in 1962 by India; became Union territory of Goa, Daman, and Diu], Protected Malay States, Russia, Japanese Saghalin (Karafuto), Siam [later Thailand], Straits Settlements [later Singapore], Timor and Cambing, Wei-Hai-Wei [Weihai, Wei-hai, or Weihaiwei; seaport in northeast Shandong province, northeast China]. Oceania: Australia, Fiji Islands, French Settlements in Oceania, Gilbert and Ellice Islands, Hawaii, Island of Guam, New Caledonia, New Hebrides, Papua, Samoan Islands (American Samoa), Solomon Islands, Territory of New Guinea *(Later German New Guinea)*, Tonga, Western Samoa *(Formerly German Samoa).*

Note: This document gives a clear definition of the geographical region named "Oceania." A "quintal" is probably 100 kg. Address: 1. Doctor of Economics; 2. Doctor of Agronomics. Both: IIA, Rome, Italy.

235. Capone, Giorgio; Grinenco, Ivan. 1923. Canada (Document part). In: G. Capone & I. Grinenco, eds. 1923. Oleaginous Products and Vegetable Oils: Production and Trade. Rome, Italy: International Institute of Agriculture, Bureau of Statistics. 545 p. See p. 111-15. [Eng]
• ***Summary:*** Crop production: Canada collects data on only one oil-yielding crop, flax. Before World War I it was cultivated only for its seed and oil, but during and shortly after the war (1915-1921), it was also grown for the fiber contained in its seed. All "tons" refer to long tons (1 long ton = 2,240 lb). Production of linseed for oil in Canada increased from 2,717 long tons in 1880, to 4,305 tons in 1900, to 106,000 tons on 572,326 acres in 1910, to a record 653,241 tons on 2,021,900 acres in 1912. In 1922 some 125,212 tons were grown on 565,479 acres. In 1922 the great majority of flax in Canada was grown in Saskatchewan (82.4% of the total). Manitoba (11.8%) and Alberta (3.9%) also grew significant amounts. In 1922 Saskatchewan began to grow significant amounts of sunflowers.

Imports of oleaginous products: During the period 1909-1922, from 2.9 million to 4.4 million in-tact coconuts were imported each year. Imports of desiccated coconuts (copra) grew from 108 tons in 1909 to 1,320 tons in 1921.

Exports of oleaginous products: The only product exported was linseed, which increased from 49,941 tons in 1909-10, to a record 516,183 tons in 1913-14, decreasing to 90,781 tons in 1921-22.

Imports of vegetable oils: In 1909-10 the leading vegetable oils imported were cottonseed oil (8,797 tons), castor oil (2,042 tons), and palm oil (1,279 tons). In 1921-22 the leading vegetable oils imported were cottonseed oil (20,651 tons) and palm oil (5,567 tons, including shea butter). Small amounts of coconut oil (included in the figure is soya bean oil for the manufacture of soap) were imported from 1913 (122 tons) to 1921 (263 tons). A small quantity of sesamum oil was among the unspecified oils imported.

Exports of vegetable oils: The only oil exported was negligible–40 tons of linseed oil in 1921-22. Address: 1. Doctor of Economics; 2. Doctor of Agronomics. Both: IIA, Rome, Italy.

236. Clark, George Harold; Malte, M. Oscar. 1923. Fodder and pasture plants. Ottawa, Canada: Department of Agriculture. 143 p. + 27 unpaginated color plates. See p. 134-35. Illust. Index. 26 cm.
• ***Summary:*** This is a reprint of the original 1913 edition. George Clark was born in 1872. Malte Oscar Malte lived 1880-1933. Address: 1. B.S.A.; 2. Ph.D. Both: Canada.

237. Campbell, James T. 1924. The growing popularity of soybeans. *Farmer's Advocate (Ontario, Canada)* 59(1633):43. Jan. 10.
• ***Summary:*** Briefly highlights the importance of soybeans in the United States. "At the recent International Live Stock Hay and Grain Show in Chicago, Minnesota made a wonderful exhibit of Soybeans, and what can be grown in Minnesota can be duplicated in Ontario; in fact, as far as soybeans are concerned, it is being done at the present time in Ontario both by the Ontario Agricultural College and by private growers throughout the Province." The growing importance of the crop for Ontario is emphasized. "Soybeans require from 95 to 115 days to mature, the times varying according to the variety grown. If desirous of seed crop, grow an early maturing soybean. If grown for hay or for ensiling with corn, use a later maturing variety, because the later the maturity, the greater the height and the foliage growth." Address: Ontario County, Ontario, Canada.

238. Zavitz, Charles A. 1924. Soy beans. *Ontario Department of Agriculture, Circular* No. 43. 4 p. Jan.
• ***Summary:*** "The growing of soy beans for seed production in Ontario is limited to a few sections bordering on the Lakes." "In our Experimental Department one variety of soy beans was grown as far back as 1893; seven varieties have been grown in each of the past fifteen years, and seventy-three varieties were under experiment in 1923. Soy beans have been distributed from the College in connection with the co-operative experiments throughout Ontario in each of the past twenty-five years, from two to three varieties being used each season."

A table (p. 2) "gives the average results in yields of green crop and of threshed seed per acre for each of eleven varieties of soy beans for the years 1921 to 1923, inclusive." The varieties are listed in descending order of seed yield: O.A.C. No. 211 (23.84 bu/acre), Tsurunoko (23.59), Minnesota No. 167 (23.39), O.A.C. No. 111 (23.26), Early Yellow (23.25), Habaro (22.89), O.A.C. No. 81 (22.20), Medium Green (21.80), Quebec No. 92 (21.08), Ito San (20.33), Brown (18.63).

"The O.A.C. No. 211, which stands highest in average yield of seed per acre [23.84 bu/acre] and in weight per measured bushel and second highest in yield of green crop per acre [7.92 tons] has been grown in the plots for five years, but in only the last three of these has it been included in the regular variety tests." A photo shows a field of "the O.A.C. No. 211 variety of Soy Beans grown at the Agricultural College, Guelph, in 1923." Address: B.S.A., D.Sc., Prof. of Field Husbandry and Director of Plant Breeding and of Field Experiments, Ontario Agricultural College, Guelph, Canada.

239. *Toronto Daily Star (Canada).*1924. Bean 'cream' winter food. April 3. p. 2.
• ***Summary:*** "Chinese priests dry the 'cream' [yuba] of soya beans after they have been boiled and store it for use as a winter food."

240. *Farmer's Advocate (Ontario, Canada).*1924. Soybeans in the farm cropping system. 59:585, 614. April 17.
• ***Summary:*** The soybean "is a new crop in Canada but it has 'taken' with remarkable rapidity." It "is only during the past two or three years that the crop has come into prominence. Last year it was grown quite extensively with corn for silage, and, to a limited extent, for hay and grain."

Seven farmers throughout Ontario province describe their generally positive experiences growing soybeans. At Weldwood Farm the Manchu and Ito San varieties were grown. J.E. Benner of Lambton County planted Ontario Black soybeans on 24 May 1923. Jeffrey Bros. of Ontario County have grown soybeans for the past five years, mostly for seed. They have grown 7-8 varieties, but the Ontario Early Black is earlier than any of the rest by two weeks. W.J. Dockstaeder of Dundas County has sowed soybeans with corn for silage, using the Black Eyebrow and Manchu varieties. I.L. Benn of Frontenac County grew soybeans last year for the first time, planting them with corn. F.A.C. Darling of Lanark County mixed one part soybeans with two parts corn for silage. Wm. Butterworth of Ontario County tried soybeans for the first time in 1923, mixing them with corn, which made a good feed for hens and pigs. "The crop has been experimented with considerably at the Ontario Agricultural College at Guelph, and Dr. C.A. Zavitz has recently issued a circular setting forth the results. The O.A.C. No. 211 is a variety which stands highest in yield of seed per acre and weight per measured bushel." "The Ontario Early Black is a variety which a number of our readers have been growing with success." Address: Canada.

241. Adams, J. 1924. The effect on tomato, soy bean, and other plants of altering the daily period of light. *American J. of Botany* 11(4):229-32. April. [4 ref]
• ***Summary:*** "Experiments were conducted at Ottawa, Canada, on the result of shortening the average period of daylight from about 15 hours (the natural length of day) to about 12 hours."

Three soy bean varieties were tested; the plants which were darkened bore flowers a little earlier than those which received more light. Address: Central Experimental Farm, Ottawa [Ontario, Canada].

242. Dickson, B.T. 1924. Mosaic studies. IV. (Abstract). *Phytopathology* 14(7):346. July.
• ***Summary:*** Soy bean mosaic was found for the first time in Quebec, Canada.

243. Zavitz, C.A. 1924. Soy beans. *O.A.C. Review* 36(5):148-51. *

244. Bark, Don H. 1924. Brooks Demonstration Farm. *Canadian Pacific Railway Company, Department of Natural Resources, Annual Report of Irrigation Investigation Branch.* For the season of 1924. See p. 128, 160.
• ***Summary:*** "In the following pages will be found a list of the crops produced on the Brooks Demonstration Farm during the season of 1924 together with cost statements, livestock data, improvements, etc... The soil on the farm is continually being built up and enriched by the growing of leguminous crops in rotation and by the pasturing of crops with live stock... The trees, lawns, shrubs and flowers on the farm now present a wonderful appearance and make an attractive showing for the large number of visitors to the farm during the summer months.

"Soy Beans: Four Varieties of Soy beans (Early Brown, Manchu Black, Eyebrow [probably Manchu, Black Eyebrow], and Wisconsin Early) were planted on May 21st in hills one foot apart, rows two feet apart. The germination

was good and a rapid growth was made until June when the growth was checked by rabbits. The plants were sprayed with Arsenate of Lead. Of the four varieties the Wisconsin Early was the only one that showed any indication of maturing and these were pulled on September 30th, but were not ripe."

Note 1. This is the earliest document seen (Jan. 2009) concerning soybeans in Alberta province, Canada, or the cultivation of soybeans in Alberta province, Canada. A 1927 photo shows Don Bark's son standing in a field of soybeans growing in Brooks, Alberta.

Note 2. This is the earliest document seen (Feb. 1998) that describes a railroad company promoting soybeans (by growing them at a demonstration farm) in Canada or North America.

Note 3. This typewritten document was found after a lengthy search by Susan Kooyman, archivist at the Glenbow Library and Archives (130–9th Avenue S.E., Calgary, Alberta, Canada T2G 0P3). She also found that Don Bark came to Canada in 1915, and was put in charge of the Irrigation Investigation Branch of the Department of Natural Resources of the Canadian Pacific Railway Company. The only report Susan has for Bark's Irrigation Investigation Branch is for 1924. She looked through 15 years of the annual reports of the Eastern Irrigation District in general and could find no mention of soybeans–though many other crops that were tested were discussed in great detail.

Note: This is the earliest (and only) document seen (Oct. 2004) that mentions the soybean variety Manchu Black. However, it is probably a typographical error. Address: Superintendent of Irrigation Investigation Branch, Alberta, Canada.

245. Early Korean / Korean: New Canadian soybean variety. 1924.

• ***Summary:*** Sources: Shutt, Frank T. 1931. "Soybeans: Influence of heredity and environment on the protein and oil contents of soybeans, as grown at Harrow and Ottawa, crops of 1928-29." *Canadian Department of Agriculture, Division of Chemistry, Report of the Dominion Chemist.* p. 54-57. For the year ending March 31, 1930. See p. 55. Two tables list the varieties grown at Harrow in 1928 and 1299. One of these is "E. Korean" [Early Korean]. In 1928: 100 beans weighed 25.21 gm. Moisture: 5.91%. Protein: 39.69%. Oil: 18.30%. On a water-free basis–Protein: 42.19%. Oil: 19.45%.

Elliott, H.G. 1946. "The soybean. Its possibilities in W.A." [Western Australia]. *J. of Agriculture, Western Australia* 23(4):285-93. Dec. See p. 293. Canadian soybean varieties presently under trial in Australia include "Early Korean."

Cohn, Henry I. 1948. "The Rickard Koreans." *Soybean Digest.* Aug. 13, 28. Dimmock, F. 1948. "Korean soybeans." *Soybean Digest.* Oct. p. 7. This letter to the editor gives a detailed history of the "Early Korean" variety in Canada. It arrived, so labeled, at Harrow in 1924.

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 2. "Early Korean" [No source given].

USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 13. "Korean.–Selected from an introduction from China by the Dominion Agricultural Experiment Station, Harrow, Ontario. Pubescence, brown; flowers, white; shattering, little; seeds, yellow with black hilum, about 2,000 to the pound; cotyledons, yellow; oil, 20.5 percent; protein, 42.5 percent, iodine number, 130. Maturity, group II." Page 25 states that Early Korean is a synonym for Korean.

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 12-13. Korean is in the USDA Germplasm Collection. Maturity group: II. Year named or released: by 1928. Developer or sponsor: Department of Agriculture, ES (Experiment Station), Harrow, Ontario, Canada. Literature: 16. Source and other information: 'Early Korean' from China, to the Harrow ES (Experiment Station), Ontario, Canada, by 1923 [probably from North Korea]. Prior designation: Early Korean. Address: USA.

246. Cates, J. Sidney. 1925. The rising tide of soy beans: New light on inoculation speeds along the Gulf-to-Canada sweep of the crop. *Country Gentleman* 90(12):8, 31. March 21.

• ***Summary:*** "People everywhere are just beginning to realize that much more of the soy disappointment than previously thought to be the case has been due to improper inoculation." W.F. Oldenburg, extension agronomist at Maryland, has found that "bacteria strains best suited to the Mammoth Yellow will not give good results when applied to earlier varieties."

By 1925, *Country Gentleman* was America's most widely read and respected farm magazine. Sidney Cates was an influential agricultural writer of national reputation. It was Cates who broke the hugely important story on the success of the new hybrid-corn in the March 1929 issue of *Country Gentleman.*

247. Meharry, Charles L. 1925. Sixth annual field meeting: Washington, D.C.–September 1, 2 and 3, 1925. *Proceedings of the American Soybean Assoc.* 1:52-54.

• ***Summary:*** "Soybean growers, representing eighteen states and Canada, convened at the Arlington Experimental Farm,

Virginia, September 1, 1925, for their Sixth Annual Field Meeting." The "growers were welcomed to Arlington Experimental Farm by Dr. W.A. Taylor, Chief of the Bureau of Plant Industry." There followed two papers presented by Dr. C.V. Piper and Mr. E.C. Butterfield. After the meeting was adjourned for lunch, "the visitors had an opportunity of inspecting an extensive exhibit of soybean products, showing the numerous soybean products from the Orient and those manufactured in the United States. Charts were displayed illustrating the value of the soybean and its various products and enlarged pictures showed the manufacture of products in China and Japan, and the various ways in which the soybean is grown and harvested in the United States."

"After lunch, the growers were taken to the fields to inspect the variety tests, new introductions, inoculation plots, time of planting tests, breeding work and method of culture plots. Demonstrations were given of the various methods commonly used in the culture of the soybean."

"The evening meeting was called to order at 7:30 in the auditorium of the New National Museum..." The program included three motion pictures and seven papers. The second motion picture is titled "Four men and the soybean." The other two are "Uncle Sam, World Champion Farmer" and "Sheep in Psalm and Sage." Note: This is the earliest document seen (Nov. 2004) that mentions a motion picture about soybeans. Nothing is known about this movie except the title.

"On the second day, September 2, the growers assembled on Union Farm, near Mount Vernon, Virginia. This farm was originally part of George Washington's estate and played an important part in the early agricultural development of this country. It was on this farm that Washington carried on his experiments in soil improvement and practical methods of farming far in advance of his time. Union Farm is now owned by Mr. Harvey S. Clapp, a prominent breeder and grower of soybeans. The growers inspected Mr. Clapp's extensive variety, inoculation, and breeding plots, and fields of different varieties for seed production."

Five papers were then presented: Welcome to Virginia, by T.B. Hutcheson, Virginia. Soybeans in the Eastern states, by Nicholas Schmitz, Pennsylvania. Fertilizers for soybeans, by G.L. Schuster, Delaware. Relation between the grower and the oil mill, by F.A. Wand, Illinois. Seed frauds in soybean varieties, by R.W. Hamilton, South Carolina.

"The after noon was devoted to demonstrations of field machinery used by Mr. Clapp in the culture and harvest of the soybean. The broadcast soybean harvester, an invention of Mr. Clapp's proved an interesting feature of the demonstration. About 3:00 p.m. the growers adjourned to visit Mount Vernon, the home of George Washington.

On the third day, September 3, the growers met at the Maryland Experiment Station, College Park, Maryland. Dr. A.F. Woods, President of the Maryland State University, welcomed the visitors to Maryland."

Six papers were then presented: Community growing, handling and sale of soybean seed, by J.T. Smith, Illinois. Soybeans in Georgia, by W.J. Davis, Georgia. Soybeans in the Mississippi Delta, by W.E. Ayres, Mississippi. Small grains after soybeans, by W.E. Riegel, Illinois. Putting soybeans on the hoof, by Taylor Fouts, Indiana. The soybean mottling problem, J.B. Park, Ohio.

Long summaries of the welcome address by W.A. Taylor, and of the many papers presented are given on pages 54-129. Address: Secretary.

248. Morse, W.J. 1925. History of the American Soybean Association. *Proceedings of the American Soybean Assoc.* 1:9-11. Sixth annual field meeting. Held 1-3 Sept. at Washington, DC.

• ***Summary:*** The best early history of the association. "Introduced into the United States, as early as 1804, the soybean has met the difficulties with which a new crop has to contend in order to become part of an established farming system... About 1900, soybeans were beginning to attract more attention through the efforts of the United States Department of Agriculture, state experiment stations and a number of hopeful growers. Several varieties rather limited as to adaptation, as the Ogemaw, Ito San, Early Brown, U.S. No. 9414 (Ebony), No. 13399 (Midwest) and Mammoth Yellow were being grown at that time in a small way. By the dissemination of seed, and literature on cultural methods and utilization, the early growers enlisted new friends in increasing numbers for the crop. It became possible to interest counties in Soybean Days as early as 1910 and by 1912 in many sections of the Corn Belt states, through the efforts of growers and extension crops men of the state colleges, Soybean Days were becoming quite common.

"The meetings offered interesting programs and were generally well attended and the increasing number of soybean enthusiasts began expressing a desire for a representative organization worthy of the coming industry. By 1920, the possibilities of the soybean industry had become so well recognized through County and State Soybean Days that it seemed an opportune time to perfect such an organization. Experiment station workers and growers of the Corn Belt states responded freely to the idea.

"Under the auspices of Indiana Experiment Station Extension Service and the county agents of Indiana the first Soybean Day of a national character was celebrated September 3, 1920 on the Soyland Farms of the Fouts Brothers, Carroll County, Indiana, and was known as 'The First Corn Belt Soybean Field Day.' More than a thousand were in attendance at this first meeting, representing growers and experiment station men from six states and representatives from the United States Department of Agriculture.

Following the program the growers agreed that a definite organization seemed necessary and the name 'The National Soybean Growers' Association' was agreed upon. A motion was presented and carried that a business session and program be held during the coming International Hay and Grain Show in Chicago. A motion was also carried that a National Soybean Field Day be arranged for the fall of 1921.

"The second field meeting was held in Illinois in 1921 at the Illinois College of Agriculture and the Meharry Farm near Tolono. The third meeting was conducted in 1922 at Columbia, Missouri." The 1923 meeting was at Madison, Wisconsin, the 1924 one at Ames, Iowa, and the 1925 one at Washington, DC. At this latter meeting, "eighteen states and Canada were represented by growers, seedsmen, experiment station men, and others interested in the industrial uses of the soybean and its products.

"The organization founded in 1920 had performed the pioneer work and had been of incalculable service to the soybean industry in the United States, but by 1924 the leaders of the movement became aware of the enormous possibilities of a more highly organized association. The original organization required no dues, hence there were no funds to further the interests of the movement nor to take care of current obligations. Up to this period the little band represented the enthusiastic expression of interest on the part of experiment stations, colleges and several prominent soybean growers in an exceedingly promising experiment. The period of experiment was quite over, the soybean was beginning to receive the recognition it deserved, the time had come for a definite organization with definite aims and a clear cut policy.

"Accordingly the request was made that a committee be appointed and instructed to meet and draw up a constitution and by-laws to present at the annual business meeting to be held in Chicago, December 1, 1925. Four members of this committee, C.L. Meharry (Indiana), J.T. Smith (Illinois), Taylor Fouts (Indiana), and W.E. Ayres (Mississippi) prepared a tentative constitution and by-laws which was presented to and adopted by the Association at the 1925 winter meeting. The name was changed to 'American Soybean Association,' and the object of the Association was set forth in the constitution which may be found on page 15.

"The American Soybean Association met as a definite organization for the first time in the Mississippi Delta in 1926 where four days of meetings were thoroughly enjoyed by members. The 1927 meeting was held in eastern North Carolina, one of the oldest soybean producing sections in the country."

"With an increasing membership, a definite organization, and available funds [from $1 per year membership dues] the Association is now able to be of more value in presenting to the members through its annual reports the best available information relating to the practical and scientific phases of the soybean industry."

Note 1. This is the earliest document seen (Feb. 1999) which mentions that 'The National Soybean Growers' Association' was formed at this meeting in Sept. 1920.

Note 2. This is the earliest document seen (March 1999, one of three documents) that refers to the farm owned by the three Fouts brothers as "Soyland Farms." Address: USDA, Washington, DC.

249. Vi-Tone. 1925. Vi-Tone (A Canadian product) (Ad). *Toronto Daily Star (Canada)*. Oct. 25. p. 10.
• ***Summary:*** A very small ad for Vi-Tone. "A delicious Malted Milk Chocolate-flavored drink. Serve it hot or cold. Rich in proteins and vitamines of the Soya Bean.

"Look for our special demonstration in the Parkdale and Riverdale Markets this week-end."

250. **Product Name:** Vi-Tone. Renamed Soybean Malter Milk, and Chocolate Malter Milk by Sept. 1929 (Malt Chocolate Soymilk).
**Manufacturer's Name:** Vi-Tone Company (Renamed in Milk-Ko Products in 1954).
**Manufacturer's Address:** P.O. Box 356, Hamilton, Ontario, Canada.
**Date of Introduction:** 1925. October.
**New Product–Documentation:** Ad for Vi-Tone by Vi-Tone Company. 1925. *Toronto Daily Star* (Canada). Oct. 25. p. 10. "A delicious Malted Milk Chocolate-flavored drink. Serve it hot or cold. Rich in proteins and vitamines of the Soya Bean."

Ad for Vi-Tone by Vi-Tone Company. 1928. Proceedings of the American Soybean Assoc. p. 39. "Jack and Jill both love Vi-Ton" [sic, Vi-Tone]. The ad text mentions "Vi-Tone 3 times. "Vi-Tone is a scientific combination of the Soy Bean with malt extract and milk–rich in protein and vitamin content–and deliciously flavored with chocolate." An illustration shows a can of "Vi-Tone," described as a "food tonic beverage."

F. Dimmock. 1929. Proceedings of the American Soybean Assoc. p. 47-50. See p. 47. "The Soybean in Canada." "As far as the speaker is aware, only one firm in Canada uses the soybean in a commercial way. The Vi-tone Co., of Hamilton, Ontario, uses annually about 5,000 bu in the manufacture of a patent food." The product name is not given. It may have been Soybean Malter Milk and/or Chocolate Malter Milk. Note also that Milqo / Milquo (Soy Milk) had been launched in Hamilton, Ontario, by 1919 (Source: H.W. Lohse. 1936. *Canadian Chemistry and Metallurgy.* July. p. 224-25).

C.A. MacConkey. 1935. Soybeans. Ottawa, Ontario, Canada: National Research Council. p. 65. "Firms Engaged in the Soybean Industry in Canada." The Vitone Co., Hamilton, Ontario."

Gray. 1936. All About the Soya Bean. p. 124. Note: Hamilton is directly south of Toronto, at the western tip of Lake Ontario. This may be the product referred to by Dimmock in 1929.

Leon Lothrope. 1932. *Nor'-West Farmer and Farm & Home* (Canada). Oct. p. 8. "Soya beans." A photo titled "Products that contain soya bean oil or meal" shows a can of "Vi-Tone" Malt Chocolate Flavor. The front panel reads: "Hot or cold. A tonic food beverage. An extraction of malt and milk–rich in protein and vitamins of the soya bean."

L.B. Breedlove. 1936. *Chicago J. of Commerce and La Salle Street Journal.* June 25. p. 14. "Soy bean–The magic plant. Article XI." "Vi-Tone Company, Hamilton, Ontario, Canada: Soy bean malted milk, chocolate malted milk."

International Inst. of Agriculture. 1936. *Le Soja dans le Monde* [The Soybean in the World]. See: Manufacturers of edible soy products. p. 206. Malted soymilk and chocolate malted soymilk. Address: P.O. Box 358, Hamilton, Ont.

American Soy Bean Association. 1938. "16th annual meeting." This leaflet lists the stores from which the soy products were purchased, incl. Milqo Limited, Vi-Tone Company, Hamilton, Ontario, Canada.

*Soybean Digest.* 1948. "Grits and flakes... from the world of soy: Milquo Ltd. is now Vi-Tone." Jan. p. 34. "Milquo Limited has changed its firm name to Vi-Tone Products Limited, 198 Gage Ave. S., Hamilton, Ontario. Ray H. Bissell is president."

Note that according to the *Soybean Blue Book* (1948, p. 80) by that year "Vi-tone Products Ltd." was making a "tonic food beverage with soybean base." No brand name is given. According to *Soybean Blue Book* (1954, p. 102) this company either apparently changed its name at this time to Mil-Ko Products Ltd. or merged with Milqo Ltd. in Hamilton. Its address changed to P.O. Box 366. It continued to make "Tonic food beverages with soybean base." When Mil-Ko appeared, Vi-tone disappeared.

251. **Product Name:** Tofu.
**Manufacturer's Name:** Chiba Tofu-ten [Tofu Shop].
**Manufacturer's Address:** Cordova St. (between Main and Gore streets), Vancouver, BC, Canada.
**Date of Introduction:** 1925?
**New Product–Documentation:** Hokubei Nenkan–The North American Times Year Book. 1936, p. 254. Chiba Tofu-ten [Tofu Shop], 206½ Main St., Vancouver, BC, Phone: Sey. 1278L. Owner: Mr. Inoshichi Chiba.

Ito, Kazuo. 1973. *Issei: A history of Japanese immigrants in North America.* Translated by Shinichiro Nakamura and Jean S. Gerard. Seattle, Washington: Executive Committee for Publication of Issei, c/o Japanese Community Service, 1414 S. Weller St., Seattle, WA 98144. xxviii + 1016 p. The map of the old Japanese district of Vancouver, British Columbia, Canada, at the front of the book (unnumbered pages) shows "Chiba Tofu." Page 780 states this map is from the 1920s.

Note: This is the earliest known commercial soy product made in British Columbia province, Canada (one of three tofu products made in Vancouver).

252. **Product Name:** Tofu.
**Manufacturer's Name:** Tanaka Tofu Mfg.
**Manufacturer's Address:** Between Dunlevy and Jackson streets, Vancouver, BC, Canada.
**Date of Introduction:** 1925?
**New Product–Documentation:** Ito, Kazuo. 1973. *Issei: A history of Japanese immigrants in North America.* Translated by Shinichiro Nakamura and Jean S. Gerard. Seattle, Washington: Executive Committee for Publication of Issei, c/o Japanese Community Service, 1414 S. Weller St., Seattle, WA 98144. xxviii + 1016 p. The map of the old Japanese district of Vancouver, British Columbia, Canada, at the front of the book (unnumbered pages) shows "Tanaka Tofu Mfg." Page 780 states this map is from the 1920s.

253. **Product Name:** Tofu.
**Manufacturer's Name:** Wakamatsu Tofu Mfg.
**Manufacturer's Address:** Between Dunlevy and Jackson streets, Vancouver, BC, Canada.
**Date of Introduction:** 1925?
**New Product–Documentation:** Ito, Kazuo. 1973. *Issei: A history of Japanese immigrants in North America.* Translated by Shinichiro Nakamura and Jean S. Gerard. Seattle, Washington: Executive Committee for Publication of Issei, c/o Japanese Community Service, 1414 S. Weller St., Seattle, WA 98144. xxviii + 1016 p. The map of the old Japanese district of Vancouver, British Columbia, Canada, at the front of the book (unnumbered pages) shows "Wakamatsu Tofu Mfg." Page 780 states this map is from the 1920s.

254. *Official Record of the U.S. Dept. of Agriculture (The).*1926. Dr. Charles V. Piper. 5(7):4. Feb. 17.
• ***Summary:*** Dr. Charles Vancouver Piper died Thursday evening, Feb. 11, at Emergency Hospital, Washington, DC. For some time he had been in poor health, but continued to carry on his work. He suffered a light stroke of paralysis at his office the previous Monday morning, was taken to his home, and then to the hospital the following day.

In charge of the Office of Forage Crop Investigations, Dr. Piper was connected with the USDA for 23 years, during which time he made a world-wide reputation as an authority on forage crops and grasses. Through his efforts, many plants and grasses of inestimable value to American agriculture were introduced from foreign countries and established in the United States.

Dr. Piper was probably best known to the general public through his work in developing the creeping bent

grasses for use on golf greens. In 1919 he discovered a clump of bent grass growing on a green at the Washington Golf and Country Club. By the vegetative method of propagation he secured a quantity of roots of this grass and in 1921 distributed the stolons or roots to various gold associations for trial. "The grass has since become known as the Washington creeping bent and is now found growing on thousands of golf greens throughout the northern section of the United States. At the time of his death Doctor Piper was chairman of the greens committee of the United States Golf Association, which he was largely instrumental in organizing, and editor of the monthly publication issued by the association. Through its columns he brought about the use of these improved grasses for greens and by his efforts created golfing conditions enjoyed by thousands of golfers everywhere. Through this medium he also found an outlet for his characteristic philosophy, which he expressed under a monthly contribution called 'Meditations of a Peripatetic Golfer.'

"The contributions which Doctor Piper made to the forage and grass industry of practical agriculture are so numerous that it is difficult to single out the most outstanding achievement. However, it was the work of Doctor Piper that secured the introduction and establishment of the now widely known Sudan grass, which is native to Africa. In a comparatively short time this grass has become one of the very valuable hay and pasture grasses over a large part of the United States. Likewise the rapid spread of soy beans in this country can be credited to his introductions and investigations.

"Doctor Piper is the author of more than a hundred papers and books on botany, agriculture, and allied subjects."

"In his search for new forage plants and other crops Doctor Piper has traveled widely, having spent much time in Japan, China, India, Java, Egypt, the Philippines, and Alaska." Doctor Piper was born on 16 June 1867 at Victoria, British Columbia, Canada. In 1885 he received his B.S. degree at the University of Washington, and his M.S. in 1892. He remained at that institution as professor of botany until 1903, when he received his appointment to the U.S. Department of Agriculture in Washington, DC.

He was a member of the American Society of Agronomy, of which he was president in 1913-14; the Botanical Society of Washington and its president in 1908-09; the Biological Society of Washington; and the Society for the Promotion of Agricultural Science.

255. Science Service. 1926. Good cows declared very hearty eaters. *Toronto Star (Ontario, Canada).* May 27. p. 26.
• ***Summary:*** "Urbana, Illinois, May 26.–Good cows eat about 5,800 pounds of silage, 1,900 pounds of hay, and 2,800 pounds of grain each year in addition to being on pasture about five and one-half months, according to figures compiled by Prof. C.S. Rhode, agricultural experiment extension specialist at the University of Illinois."

"'An adequate supply of good alfalfa, soybean, clover and cowpea hay is the backbone to a good dairy ration,' he claims." Dairymen should plan to grow large acreages of legumes.

256. Eaton (T.) Co., Limited. 1926. Eaton's family drug sale (Ad). *Toronto Daily Star (Canada).* Sept. 11. p. 34.
• ***Summary:*** Near the center of this full-page ad, under "Patents" [meaning patented products] we read: "Vi-Tone–29¢, 49¢."

Note: By Jan. 1927 this product was described in another Eaton's ad as: "Vi-Tone, a milk chocolate-soya bean beverage, ½, 1, 5-lb tins. Sale price–29¢, 49¢, $2.39." Its is not clear whether or not the product contained soya beans in Sept. 1926. Address: College St., Toronto. Phone: ADelaide 4941 or 5001.

257. *Purdue Alumnus (West Lafayette, Indiana).*1926. Prof. A.T. Wiancko heads new department. 14(1):7. Oct.
• ***Summary:*** "Announcement was made at Purdue University of consolidation of the department of soils and crops in the Agricultural Experiment Station and of the department of agronomy in the School of Agriculture, into one department of agronomy with Prof. A. T. Wiancko, head of the experimental and extension work in soils and crops, as chief of the combined department.

"The change became effective at the opening of school. Prof. M.L. Fisher, who became dean of men July 1, and who has headed the agronomy teaching work, will retain his title as professor of agronomy and continue what work he can in teaching and research. Prof. G.H. Cutler, who has been head of the department of agronomy in the University of Alberta, Canada, at Edmonton, will become professor of agronomy and assistant chief of the department.

"Prof. A.T. Wiancko, the head of the combined department, is perhaps the best known corn judge in America, and through his work as chairman of the Indiana corn score card committee twenty years ago, and subsequent judging and corn schools conducted since that time, has done as much as any one perhaps to bring the state to the top in corn production. He judges the corn each year at state, national and international shows. A native of Sparrow Lake, Ontario, he attended Ontario Agricultural College and is a graduate of that institution and the University of Toronto. For several years following, he worked on and was manager of large farms in Minnesota and Nebraska, joining the instruction staff at the University of Nebraska in 1901. On January 1, 1903, he came to Purdue as associate professor of agriculture, teaching soils and crops and farm mechanics."

258. Meharry, Charles L. 1926. Seventh annual business meeting. Chicago, Illinois–1926. *Proceedings of the American Soybean Assoc.* 1:29-34.
• ***Summary:*** The meeting was called to order at 10:30 a.m., November 30, 1926, by President W.E. Ayres. Members who were present outlined soybean experiments being conducted in the various states: Prof. G.M. Briggs of Wisconsin; Prof. John Buchanan of Guelph, Ontario, Canada; Mr. Munn and Mr. E.A. Hollowell of Illinois; Mr. M.O. Pence and Prof. K.E. Beeson of Indiana; Mr. E.S. Dyas of Iowa; Mr. E.L. Utterback of Missouri; President W.E. Ayres of the Mississippi Delta Experiment Station.

Prof. Buchanan noted that the province of Ontario extends as far south as the 42nd parallel. "It is therefore, quite possible to grow soybeans in Ontario. The Guelph Station has conducted extensive variety tests and one new variety, a selection from Habaro, was developed by this station. Experiments on time and methods of planting and cultivation are in progress. In 1926 about one thousand acres of soybeans were grown in Ontario, used principally as a substitute hay crop. The corn borer is rapidly forcing soybeans and other substitute crops to the attention of the farmers."

"Professor Beeson stated that soybeans are still considered by most Indiana farmers as a substitute crop and from 250,000 to 300,000 acres of soybeans are being grown in Indiana. Of this acreage from 10 to 12 percent are harvested for seed, about 25 percent for hay and the remainder grown in corn and for soil improvement. There is a marked tendency in Indiana to substitute soybeans for oats in the rotation. Professor Beeson reported that in harvesting demonstrations very satisfactory work had been done with the combine and that several Indiana growers have purchased combines. The new Dunfield variety was mentioned as giving the highest seed yield at the Indiana Station."

Three men spoke enthusiastically about the use of the "combine harvester-thresher" for soybeans: Mr. Taylor Fouts of Indiana, Mr. C.W. Tabaka of Illinois, and Mr. F.R. Shultz of the Case Company, Peoria, Illinois. Mr. Fouts noted: "If the European corn borer forces a reduction in corn acreage, soybeans are much more likely to become a useful substitute crop, because combine harvesting will simplify the greatest obstacle to soybean culture, that is, the difficulty of harvesting and threshing."

"It was moved, seconded, and carried that on and after November 30, 1926, the membership dues be fixed at one dollar per year."

Note: This is the earliest document seen (March 1999) that mentions a combine in connection with Taylor Fouts (or any other Fouts brother) of Indiana. Address: Secretary-Treasurer, American Soybean Assoc.

259. Zavitz, Charles A. 1926. College-bred varieties of farm crops. *Ontario Department of Agriculture, Circular* No. 49. 4 p. Nov.
• ***Summary:*** Contents: Introduction. Oats. Barley. Winter wheat. Spring wheat. Spring rye. Field peas. Soy beans. Millet. Mangels. Conclusion.

"Soy beans: The soy beans is a legume grown extensively in the eastern countries, especially in Japan, Manchuria and Siberia. According to a report issued by the United States Department of Agriculture, 'The feeding value of the soy bean has been found to be greater than that of any other forage plant except the peanut.

"O.A.C. No. 211–Matures in Southern Ontario, vigorous grower, beautiful yellow grain of fine quality well adapted for use as a grain producer, fodder producer, or a crop for plowing under for enriching the soil.

"In all, about one hundred varieties of soy beans have been under test at the Ontario Agricultural College. The O.A.C. No. 211 has given the highest yield of grain and, along with another variety, the highest yield of fodder of all varieties under test at Guelph for five years." Address: B.S.A., D.Sc., Prof. of Field Husbandry and Director of Plant Breeding and of Field Experiments, Ontario Agricultural College, Guelph, Canada.

260. Corbett, L.C.; Gould, H.P.; Robinson, T.R.; et al. 1926. Fruit and vegetable production. *Yearbook of Agriculture (USDA)* p. 151-452. For the year 1925. See p. 403-11.
• ***Summary:*** In the section titled "Leguminous vegetables," the subsection on beans (p. 308) states: "Two types of beans, the kidney, including field and garden varieties, and the Limas, are of great importance to New World horticulture. The broad beans are grown only in cooler sections of the country, chiefly Canada, while the soy bean *(Glycine hispida)* and the cowpea *(Vigna sinensis)* are of great importance, and though not, strictly speaking, horticulture crops, they are largely used as food and in truck-crop rotations."

The section on peanuts (p. 403-11) traces the history of the peanut and discusses the distribution of the industry in the United States, the importance of high-yielding seed, the uses of the nut, and the handling of the crop. Seven photos concern peanuts. Three maps of the USA show (using dots) areas of production of dry beans (navy, pinto, lima, etc.), green peas, and peanuts. Address: Bureau of Plant Industry, USDA.

261. Drayton, F.L. 1926. A summary of the prevalence of plant diseases in the Dominion of Canada, 1920-1924. *Canadian Department of Agriculture, Bulletin* No. 71. 88 p. See p. 43. New Series.
• ***Summary:*** Reports the occurrence of 3 soybean diseases: Root rot *(Fusarium sp.)* found in Manitoba in 1924. Leaf Spot *(Bacterium glycenium F.C. Coerper)* found in

Manitoba in 1924, and in some of the variety plots at the Harrow Experimental Station, Ontario. Mosaic, found in Macdonald College, Quebec, in 1923 and 1924. Also at Harrow, Ontario, in 1924. Address: Plant Pathologist, Ottawa.

262. Eaton (T.) Co., Limited. 1927. Commencing a three day special selling in the drug section (Ad). *Toronto Daily Star (Canada).* Jan. 8. p. 32.
• ***Summary:*** In the upper left corner of this large ad, under "Patents" [meaning patented products] we read: "Vi-Tone, a milk chocolate-soya bean beverage, ½, 1, 5-lb tins. Sale price–29¢, 49¢, $2.39." Address: College St., Toronto. Phone: TR. 3311.

263. Parsons, T.R. 1927. The use of the soy bean in human nutrition. *Lancet* i(5396):267-68. Jan. 29. Reprinted in: L. Berczeller. 1928. Publications on Berczeller's Soy Flour. Vol. I. 4 p. [8 ref]
• ***Summary:*** The source and properties of the soybean, its uses as food and its relative cost are discussed. A large-scale investigation of the possibilities of the soybean as an article of diet is suggested. Address: Asst. Prof. for Medical Research, The McGill Univ. Clinic, Royal Victoria Hospital, Montreal, Canada.

264. *Toronto Daily Star (Canada).*1927. Zavitz superannuated: Health has been poor. Has long record of achievement in agriculture. May 4. p. 28.
• ***Summary:*** "Dr. C.A. Zavitz officially severs his connection with the Ontario Agricultural college at the end of June. Superannuation has been granted to him. His health has not been good.

"One phase of Dr. Zavitz's contribution to Ontario agriculture was the improvement of strains and varieties of seed, through the experimental plot system carried on at the college. O.A.C. No. 21 barley, O.A.C. No. 72 oats, Dawson's golden chaff and O.A.C. No. 104 winter wheat are a few of the leading improvements which have entered into the general farm practice throughout the province.

"In addition there have been many other improved strains of spring wheat, spring rye, field peas, soy beans, millet and mangels. The aggregate value of the increased yields resulting largely from these improved strains has, over a period of years, aggregated many millions of dollars."

265. *Proceedings of the American Soybean Assoc.*1927. Directory of the American Soybean Association. 1:191-92. Eighth annual field meeting. Held 9-12 Aug. in North Carolina.
• ***Summary:*** The 146 members are listed in alphabetical order by last name, with a city and state for each. There are members in the following states, listed here in descending order of number of members: North Carolina (27 members), Indiana 27 (incl. M.S. Blish, Seymour [probably of the Blish Milling Co.]), Mississippi 22, Illinois 14, Louisiana 11, Missouri 6, Ohio 5, Tennessee 5, Virginia 5, Georgia 4, Canada 3 (all in Ontario: John Buchanan, Guelph; Justus Miller, Essex; S.B. Strothers, Essex), Iowa 3, Arkansas 2 (incl. A.H. Hermance, Kingston; C.K. McClelland, Fayetteville), DC 2 (J.E. Barr and W.J. Morse), South Carolina 2 (T.O. Epps, Kingstree; G.J. Wilds, Hartsville [Note: Wilds was a soybean breeder with Coker Pedigreed Seed Co.]), Wisconsin 2 (G.M. Briggs, Madison; E.J. Delwiche, Green Bay), Alabama 1 (M.S. Pearson, Beatrice), Kentucky 1 (H.H. Givin, Napfor), Nebraska 1 (C.B. Turner, Grand Island), New York 1 (Margaret Simmons, Long Island City), New Jersey 1 (G.A. Mitchell, Vineland), and West Virginia (T.E. Odland, Morgantown).

Note: This is the earliest directory seen listing all members of the American Soybean Association. Membership dues are now $1 per year. It may also be the only such directory.

266. *Toronto Daily Star (Canada).*1927. Odd queries answered. Oct. 6. p. 33.
• ***Summary:*** "Q. How is plain chop suey made?

"A. Use 8 pork chops, 3 stalks celery, 2 cups of mushrooms and 2 large onions." Plus other ingredients. Chop, blend and fry "until brown, then add the mushrooms, onions and celery, 1 tablespoon of Worcestershire sauce, 3 of bean sauce [soy sauce] and 1 cup of wheat sprouts, if desired." Stirring constantly, cook until brown and thick.

267. Black Ontario: New Canadian domestic soybean variety. 1927. Seed color: Black.
• ***Summary:*** Sources: Zavitz, C.A. 1927. "Forty years' experiments with grain crops." *Ontario Department of Agriculture, Bulletin* No. 332. p. 36-87. Oct. A table (p. 87) shows 26 varieties that have been under test at the Ontario Agricultural College experimental grounds in the three years 1924, 1925, and 1926–in descending order of seed yield: Black Ontario has the fourth highest yield, 1,734 lb/acre; by comparison, O.A.C. No. 211 yielded 1,821 lb/acre.

Squirrell, W.J.; Laughland, J. 1932. "Soybeans in Ontario." *Ontario Department of Agriculture, Bulletin* No. 366. 16 p. April. Two tables (p. 6-7) show the average results for 6 years in testing 21 varieties of soybeans for fodder and for grain by the Department of Field Husbandry at the Ontario Agricultural College. For grain/seed production Black Ontario has the highest average yield over the 6 years at 28.47 bushels/acre, followed by North's (28.42), O.A.C. No. 211 (27.73), and Black Manchurian (Jeffrey; 27.12). The plants were cut for harvest between Sept. 23 and Oct. 9. The Black Ontario was received from a grower in the Manitoulin Island in 1924. It produces small, black grain and straw of medium length. "The O.A.C. No.

211 has proven to be the best general purpose soybean tested at the College." Address: Ontario, Canada.

268. Zavitz, C.A. 1927. Forty years' experiments with grain crops. *Ontario Department of Agriculture, Bulletin* No. 332. 98 p. Oct. See p. 36-37, 49-51, 84-87.

• ***Summary:*** The section titled "Dates of seeding soy beans" (p. 36-37) contains a table showing the results of sowing three varieties (Early Brown, Early Yellow, and O.A.C. No. 211) on four different dates from May 8 to May 28 during the three years 1924, 1925, and 1926. For each variety is given the date of maturing and the yield of grain. The highest yield came from O.A.C. No. 211, sown on May 14 and matured on Oct. 8; it yielded 27.91 bu/acre.

The section titled "Soy beans, Dent corn and sunflowers grown alone and in combination for grain and fodder" (p. 49-51) "The highest total yield of green crop per acre was obtained from the Soy beans, Dent corn and sunflowers when grown in combination, the average being 18.8 tons or 1.7 tons per acre more than sunflowers when grown alone." An interesting phase of this line of investigation is the value of a combination of Soy beans and Dent corn. The average 7 years for the following crops were: Soy beans, 7.9; Dent corn, 13.8; Soy beans and dent corn, 13.8. The average for the 7 years gives exactly the same total weight for corn alone as for corn and Soy beans combined. The Soy beans being rich in albuminoids will make a much richer and better balanced ration for feeding purposes when mixed with corn.

When everything is taken into consideration for grain production, it is preferable to grow Dent corn and Soy beans separately rather than in combination. Three acres of corn and 2 acres of Soy beans would give a greater total production of each crop than if 5 acres of the 2 crops were grown in combination.

The section on "Soy beans grown with millets, sorghums, etc., for fodder (p. 51) notes that in each of the past two years the O.A.C. 211 variety of Soy bean has been grown alone and with seven other fodder crops, whose names are given. The results are unclear.

The section titled "Varieties of Soy beans" (p. 84-87) states: "We have tested in all fully one hundred varieties of soy beans, most of them for five years or over. The Early Yellow variety has been under test for thirty-one years [i.e., since about 1896], during which time it gave an average annual yield of grain per acre of 16.78 bushels, or 1,006.8 pounds. In a twenty-two-year test the average annual yield of grain per acre was 1,055 pounds for the Early Yellow Soy, and 950 for the Ito San. In another test, running twenty-two years, the Early Yellow gave 5.9 and the Ito San 7.5 tons of green crop per acre per annum. It will be seen that... the Early Yellow was higher in production of grain and the Ito San in production of fodder.

"Eight varieties, which have been grown under similar conditions in each of the past fourteen years. The following table gives the average results for the fourteen-year period." For each variety is given the average height (inches), weight per measured bushel (lbs), yield per acre of green fodder (tons), and of grain (bushels by weight). The eight varieties are listed in descending order of grain [seed] yield: Habaro No. 20405 (20.38 bu/acre), O.A.C. No. 111 (19.92), Tsurunoko (19.91), Early Yellow (19.81), Quebec No. 92 (18.64), Brown (17.94), Ito San (17.30), Medium Green (13.51).

"The Habaro was imported from the United States Department of Agriculture at Washington. It was first introduced in 1906 from Khabarovsk, Siberia. The O.A.C. No. 111 was obtained through selection work from the Early Yellow variety, the latter being originally obtained from Dr. C.C. Georgeson, then connected with the Agricultural Experiment Station at Manhattan, Kansas. This was one of the leading varieties imported by Dr. Georgeson from Japan a few years previous.

"The Tsurunoko variety, third on the list, was started 19 years ago, from 4 ounces of seed obtained directly from the College of Agriculture, Sapporo, Japan. The Quebec No. 92 was originated by selection by Dr. Leonard S. Klinck, when in charge of the agronomy work at Macdonald College, Quebec. The Medium Green has been growing at the College for a long time, but owing to its late maturity does not give satisfactory results as a grain producer."

A second table (p. 85) gives the average yields of fodder and seed of thirteen varieties grown at the College in the last five years. These include the eight listed above plus (in descending order of seed yield): O.A.C. No. 211, Manchu, Habaro, Minnesota No. 167, Early Soja (Steele, Briggs), Early Soja (Bruce). The top six varieties in seed yield are: O.A.C. No. 211 (28.1 bu/acre), Manchu (27.38), Tsurunoko (26.43), O.A.C. No. 111 (25.97), Habaro (25.97), Early Yellow (25.82). Note that O.A.C. No. 211 has the highest average seed yield. "This variety has now been accepted as eligible for registration by the Canadian Seed Growers' Association. It is the only variety of soy beans which has been so honoured."

The Manchu was imported in the U.S. in 1913 from Niguta, Manchuria, and was entered into the College tests in 1922... The Manchu has a black, and the O.A.C. No. 211 what is usually termed a yellow eye. Other than the color of the eye, both of these varieties are of a beautiful yellow appearance."

A table (p. 87) shows 26 varieties of soy beans that have been under test at the Ontario Agricultural College experimental grounds in the three years 1924, 1925, and 1926. Those not mentioned above are (in descending order of seed yield): North's, Black Ontario, Mandarin, Black Eyebrow (Jeffrey), Black Manchurian (Jeffrey), Oyaji, Shiro Kotsubu, Kuro-otsubu aka, Argyle (Jeffrey), Ogemaw,

Hollybrook (Jeffrey), Chagara, Wasa-Otsura, Washe Otuku. The top eight varieties in seed yield are: O.A.C. No. 211 (1,821 lb/acre), Manchu (1,746), North's (1,737), Black Ontario (1734), Mandarin (1,699), Black Eyebrow (Jeffrey) (1,670), Habaro No. 20405 (1,629), O.A.C. No. 111 (1,618). "It will be seen that the O.A.C. No. 211 variety stands at the head of the list in yield of grain, and second highest in yield of green fodder."

Photos show: (1) The Field Husbandry Building at O.A.C. (cover). (2) Soy bean plants growing with Dent corn for fodder (p. 50). (3) A man standing in an acre plot of O.A.C. No. 211 Soy Beans grown for grain (p. 86).

Note: This is the earliest document seen (Sept. 2004) that mentions the soybean variety Black Ontario. Address: B.S.A., D.Sc., Prof. of Field Husbandry and Director of Plant-Breeding and Field Experiments, Ontario Agricultural College, Guelph.

269. Don Bark's son standing knee-deep in an experimental plot soybeans at the Canadian Pacific Railway's Brooks Demonstration Farm in Brooks, Alberta, Canada (Photograph). 1927. *

• ***Summary:*** This black-and-white photo (#B3120) is owned by the library and archives of the Eastern Irrigation District, P.O. Bag 8, 550 Industrial Road, Brooks, Alberta T1R 1B2, Canada. Phone: 403-362-1400. A sign in the foreground of the field says "Soy Beans." Note: See also Don H. Bark (1924). MacConkey (1936) states that Don Bark first grew soybeans at Brooks, Alberta, in 1922.

According to Gerry Bander, the archivist, the photo has no date written on it. On the index card in the cardfile, the date of the photo is given as 1920. However Jerry is quite sure that this date is incorrect, and that based on computer records concerning the origin of the series of photos, of which this one is a part, the correct date should be 1927.

She was unable to find any other early documents in her archives (including all Eastern Irrigation Section Annual Reports, Brooks, and Mr. Griffin's materials downstairs) concerning soybeans in Alberta. She found an article about Don Bark which gives his history but does not mention soybeans.

Note: This is the second earliest document seen (Jan. 2010) concerning soybeans in Alberta province, Canada, or the cultivation of soybeans in Alberta province, Canada. Yet the date is not firm.

270. Dorland, Arthur Garratt. 1927. A history of the Society of Friends (Quakers) in Canada. Toronto, Ontario, Canada: The Macmillan Co. of Canada Ltd. xiii + 360 p. See p. xi, 170-71, 342. Illust. Index. 22 cm. [141* ref]

• ***Summary:*** The section on Lobo and Arkona townships (p. 168-72) notes that the first Friends' families came to Lobo Township in about 1843. The first of the new meetings in Lobo Township was at Coldstream, which was located about 15 miles northwest of London, Ontario. By 1857 Lobo was established as a regular Preparative Meeting and by 1893 it became a Monthly Meeting. Daniel Zavitz came to Lobo in 1843, and purchased 100 acres of land for $4/acre; not one tree on it had been cut. During the first year he cleared 7 acres, which he planted to wheat, but his crop was ruined by late frost. Undaunted, he kept clearing the stubborn forest, adding new fields. After 4 years, he traveled to Western New York State "to secure the hand of a companion and helpmate in the person of Susan W. Vail, who returned with him to the home in the clearing which had been prepared during those four years of labour. The descendants of this pioneer Quaker home have been, and still are, among the leaders in this community"

(Footnote: See: Edgar M. Zavitz, *A History of Friends in Lobo Township,* London, Ontario, Canada, no date. Edgar M. Zavitz, a son of Daniel Zavitz, occupied the old homestead until his death.)

In the pioneer community of Lobo a flourishing Friends' Meeting was eventually established. In 1849 a meeting for Worship on First Days was granted to Lobo Friends, and in 1857 a regular Preparative Meeting was established by authority of Norwich Monthly Meeting. In 1850 property for a meeting house was first secured. Daniel Zavitz and Daniel H. Cornell were appointed the first trustees of the property. In 1859 a new brick meeting house (50 x 32 feet) was erected; it still stands at Coldstream.

Lobo Meeting soon became one of the most progressive centers of Quakerism in Canada. In 1886 a monthly periodical, *The Young Friends' Review,* began publication, with both S.P. Zavitz and Edgar M. Zavitz on its editorial board. It was published until 1899, when it was transferred to Friends in New York, then after a few years merged with the *'Friends' Intelligencer* of Philadelphia [Pennsylvania].

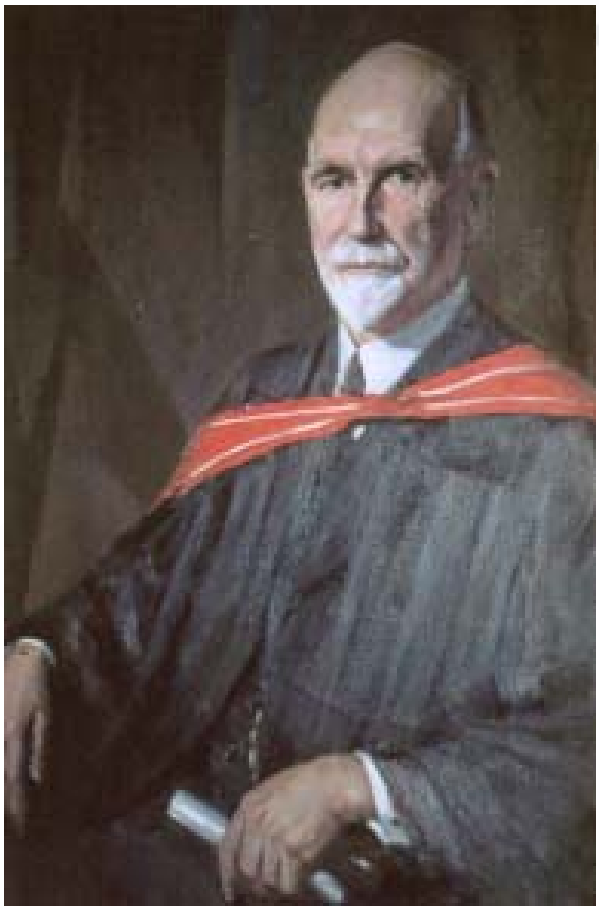
"No single meeting in the Society of Friends in Canada can show a more interesting record of achievement than this little group of Friends at Lobo. Moreover, out of this group came Charles A. Zavitz, Professor of Field Husbandry in the Agricultural College at Guelph, Ontario, who by his scientific attainments and skill in the field of agriculture contributed materially to the food production of Canada and of the world." (Footnote: "In 1916 the University of Toronto conferred on Charles A. Zavitz the degree of D.Sc. for his distinctive attainments in Field Husbandry. He also served for many years as Clerk of Genesee Yearly Meeting, and later as Chairman of the Canadian Friends Service Committee.")

In 1931 the Service Committee became the focal point of a united effort by Canadian Friends. That year the "three Yearly Meetings decided to appoint members to serve on a united Canadian Friends Service Committee. Charles A. Zavitz, a member of the Genesee Yearly Meeting (Hicksite) was appointed Chairman..."

A map (inside front covers) shows the townships in Upper Canada (Ontario), the Maritime Provinces, and along the U.S.-Canadian boundary where Friends principally settled. Two carts (inside rear covers) show: (1) Meetings established by the Society of Friends in Canada prior to the "Great Separation" of 1828. (2) Meetings belonging to "Orthodox" and "Hicksite" Friends in Canada after 1828. Key early dates of establishment: 1695–New York Yearly Meeting. 1841–Pelham Quarterly Meeting. 1848–Yonge St. Quarterly Meeting. 1867–Canada Yearly Meeting.

Chapter 1, titled "The organization, discipline, and distinctive testimonies of the Society of Friends" gives an excellent overview for those unfamiliar with the subject: Introduction (brief history, George Fox and Quakerism in England, different levels of meetings, ways of making decisions when the Clerk "takes the sense of the meeting" based on the "presence and fellowship of the Spirit" and the "deeper unity of love underlying all diversity and difference of idea," Ministers, Elders, and Overseers). Plain language and dress. Peace (against war). Oaths (not taking them). Marriage (by fellow Quakers). Ministry and worship. Itinerant Ministry. Address: PhD, Prof. of History, Univ. of Western Ontario, London, Canada.

271. Portrait of Prof. Charles Ambrose Zavitz (Photograph). 1927. Undated.



• ***Summary:*** This is a color photograph of a color oil painting of Prof. Zavitz (lived 1863-1942) was painted (oil on canvas) by Charles MacGregor in 1927. Prof. Zavitz is wearing academic robes and has a white pointed beard. The framed painting is about 4 feet high. In 1928 it was presented by the Class of 1927 to the Ontario Agricultural College. It hangs in the foyer of the Crop Science Building at the Ontario Agricultural College in Guelph, Ontario, Canada–on the right wall as you enter. It belongs to the University of Guelph collection. For permission to reproduce, we thank the Macdonald Stewart Art Centre, Univ. of Guelph.

Talk with James R. Zavitz. 2001. Dec. 6. Prof. Zavitz's wife did not like this portrait. It was taken when he was going through a stressful period because he and the then president, Dr. Reynolds, did not get along at all. An attempt was being made to force him out, and he was bucking that when the photo was taken. Office politics.

272. Howell, D.J. 1928. Replaced old varieties with new: Ontario fields made more productive through labors of Dr. C.A. Zavitz. *Family Herald and Weekly Star (Canada).* Jan. 4. p. 3, 7. *

273. Tompkins, P.W. 1928. The Pacific Coast oil industry: History, evolution and progress of the vegetable and fish oil trades. *Oil & Fat Industries* 5(2):48-57. Feb. See p. 51-52. Continued from January issue.

• ***Summary:*** "Soya bean oil importation originated on the Pacific Coast, commencing about 1908 and arriving in second-hand kerosene tins. At that time the oil was dutiable and the importers, seeing a large business opportunity if the duty was removed, were successful in having it placed on the free list. The early shipments of soya bean oil, packed in tins and cases, were sold to soap manufacturers.

"With the removal of the duty in 1909, the imports increased rapidly and the packing changed from tins to new American oak barrels. This oil found a ready market throughout the U.S., and the Pacific Coast importers as far back as 1910 started to ship it in tank cars across the American continent, which necessitated the installation of tanking facilities in San Francisco... With the European war, the imports of soya bean oil showed an enormous increase, shipments then being brought forward not only in new American oak barrels, but also in tins, as well as in bulk in the deep tanks of steamers. These heavy arrivals continued until the tariff of 1922, which removed soya bean oil from the free list and placed it on the dutiable list at the rate of 2½ cents per pound, thus reducing imports tremendously.

"Soya bean oil continues to be an article of import but only spasmodically. All shipments now come forward in bulk in steamers' deep tanks in quantities of approximately 500 to 800 tons at one time. Some of this oil is consumed in this country, while a large portion finds its way into Canada.

"Some of the early arrivals of soya bean oil originated at Shanghai, Hankow, Newchang and Dalny (Dairen), but the Manchurian product shipped from Dairen constitutes the entire present import. Most of the oil is pressed, and is consumed by the soap industry, though some is used in the manufacture of paint. During the World War considerable was used for edible purposes."

274. Goss, J. Fletcher. 1928. The combine in South Dakota. In: Present Status of "Combine" Harvesting: Papers, Discussion, and Reports Presented at the "Combine" Session of the Meeting of the Power and Machinery Division of the American Society of Agricultural Engineers [ASAE], at Chicago, November, 1927. St. Joseph, Michigan: ASAE. 38 p. See p. 5-6.
• ***Summary:*** "The combine is coming into South Dakota very rapidly, as in many other states in the central and central western part of the United States and Canada. The first combine was used in South Dakota in 1920. The next of which we have any record was purchased in 1922. In 1925 there were possibly two dozen combines in use... I know it is a conservative estimate to say that there are over 200 combines in South Dakota at the present time" (1927).

"Practically every kind of small grain has been harvested with a combine in this state. Wheat, of course, is the largest crop, but oats, barley, spelt, rye, and flax, as well as sweet clover and soybeans, have been harvested successfully."

"Very few horses are used on the combine or to haul grain. In fact, only 42 per cent of the combine owners visited owned any work horses and all the combines were pulled by tractors."

"Most of the machines do some custom work, and there are a few machines that do nothing but custom work. We have a record of one 16-foot machine doing 900 acres of custom work as well as 450 acres of the owner's. In most cases the man who furnishes the machine furnishes everything and charges by the acre. The prevailing charge is $2.50 per acre but a few charge $2.75 to $3.00." Address: Asst. Prof. of Agricultural Engineering, South Dakota State College.

275. Vi-Tone Company. 1928. George Young takes plenty of energy-producing food (Advertorial). *Toronto Daily Star (Canada).* Sept. 10. p. 2.
• ***Summary:*** George Young, a well-known swimmer, and Johnny Walker, a trainer of swimmers, both favor foods that are high in energy-producing powers, and "one of the most important of these is Vi-Tone, which many people use and most of us have seen in the stores.

"It is a food tonic beverage, with a delicious malt chocolate flavor and contains the rich proteins and vitamins of the soya bean.

"Taken hot or cold it produces energy almost instantly. In this way it is far better than mere stimulants. For Vi-Tone gives that staying power which can only be obtained from true nourishment." Address: [Hamilton, ONT, Canada].

276. McRostie, G.P.; Hamilton, R.I.; Dimmock, F.; Clark, S.E. 1928. Soybeans in Canada. *Canada Department of Agriculture (Ottawa), Pamphlet* No. 93. 11 p. New Series.
• ***Summary:*** In Canada the main areas of production are the central and southwestern portions of the province of Ontario. Small areas have been grown in every province in the Dominion. Canada has imported annually, during the last 7 years, an average of about 5,000,000 pounds of soybean oil for use in the manufacture of soaps and paints.

The cake or meal resulting from the extraction of oil from soybeans has a feeding value equal to that of linseed meal or cotton seed cake. It is being imported into Canada at present in considerable quantities for feeding purposes.

A description of 18 varieties grown in the tests at the Dominion Experimental Station, Harrow, Ontario are listed in a table. Address: Central Experimental Farm, Ottawa.

277. Vivenza, A. 1928. La coltivazione della soja in Italia e nelle sue Colonie [The cultivation of the soybean in Italy and in its colonies]. *Atti della Societa Italiana per il Progresso delle Scienze (Perugia)* 16:375-93. Oct. 30 to Nov. 5, 1927. [3 ref. Ita]
• ***Summary:*** Contents: Introduction. The soybean *(La soja).* Characteristics of the plant (and places where its cultivation is being tested). Varieties of soybeans. Ecological requirements. Cultural requirements. Current state of soybean cultivation in various countries: France, Spain, Central Europe, United States and Canada, Manchuria, Ceylon, New South Wales *(Nova Galles del Sud).* More recent soybean trials in Italy (Manvilli, Bottari, Marignoli in Spoleto, Ferrero in Sardegna, etc.). Experiments conducted at Perugia. Cultivation of soybeans in the Italian colonies (experiments in Italian Somalia, Libya (Tripoli), and potential in the Eritrean plateau *(l'Altipiano Eritreo)).* Ploughing under soybeans as green manure. Possibilities for cultivating soybeans on a vast scale in Italy. Conclusions.

Pages 388-89 discuss cultivation of soybeans in the Italian colonies. "The amazing ability of soya to benefit from intense sunlight, provided that the soil does not lack a certain level of humidity, makes one think of the potential of this crop on the fertile, well-watered soil of Italian Somalia. In this region, a legume very similar to the soybean has already been cultivated for several years and with excellent results–*Vigna sinensis*, called 'cowpea' by the Americans. This should be an indication of conditions favorable to the cultivation of soybeans, probably also as an intercrop.

"I understand that soybean experiments are being conducted by the large agencies of S.A.I.S. (Società Agricola Italo-Somala [Italo-Somalian Society of

Agriculture]) in the Scidle (under Uebi Scebeli) headed by the eminent S.A.R., the duke of Abruzzi.

"The agricultural director of these agencies, Dr. Giuseppi Scassellati-Sforzolini, who is handling the experiment with great skill and interest, relates however that the initial results are less than satisfying. But these tests do not rule out altogether the soybean crop's potential for success in our colony.

"In Libya, under the care of the Office of Experimental Agriculture in Tripoli, experimental cultivation of soybeans was carried out this year, but with negative results. In the autumn, the soybean plants demonstrated little resistance to the cold, and in the spring they showed a need for much irrigation.

"This information led me to the esteemed Prof. G. Leone, director of agricultural services of Tripolitania, who among other things, supports a repeat of the experiments next year." However the author apparently favors phasing out the planting of crops like the soybean in Libya.

"Further experimentation by the worthy *Istituto agrario sperimentale di Tripoli* [Experimental Agricultural Institute of Tripoli] will determine if soya resists normal minimum temperatures in the spring and the notorious *gibli* winds, and therefore will decide definitively on the possibility of spring crops in non-irrigated lands. If indeed possible, soya could then be planted in autumn, grow during the winter, and ripen in spring to either whole dry soybeans or green forage. Of course it would need to be provided with the introduction and diffusion of the specific nitrogen-fixing bacteria it requires.

"With regard to the Eritrean Colony, it can't be denied that on the Eritrean plateau, soya could become successfully cultivated. But this is also awaiting experimental resolution." In summary: Soya had been cultivated in Somalia and Libya by Oct. 1927.

"In Italy the soy bean cannot be grown as a second crop following a cereal, but only as a principal crop, partially replacing maize, beets or beans. Irrigation is needed for best results in the arid conditions of southern Italy... The early varieties of soy bean are the only ones which can be grown in Italy, and the yield of these is rather low, 5-20 bu. per acre, depending on soil fertility. While the culture of the soy bean in Italy may sometimes be usefully substituted for that of maize or beans, no great hopes should be built on it. Hitherto very few experiments have been made of soybean cultivation in the Italian colonies. The indications are that it would succeed in Somaliland and on the Eritrean plateau [Note that Eritrea is a province in northern Ethiopia; its capital is Asmara]. This is less probable for Libya, where the irrigated zone is limited and occupied by other more remunerative crops."

Note 1. This is the earliest document seen (Aug. 2009) concerning soybeans in Libya, or the cultivation of soybeans in Libya. This document contains the earliest date seen for soybeans in Libya, or the cultivation of soybeans in Libya (by Oct. 1927). The source of these soybeans is unknown.

Note 2. This is the earliest document seen (Aug. 2009) concerning soybeans in Somalia, or the cultivation of soybeans in Somalia. This document contains the earliest date seen for soybeans in Somalia, or the cultivation of soybeans in Somalia (by Oct. 1927). The source of these soybeans is unknown.

Note 3. This is the earliest document seen (Aug. 2009) concerning soybeans in connection with (but not yet in) Eritrea and Ethiopia.

Note 4. Libya was occupied by Italians in 1914. The provinces of Tripolitania (in northwestern Libya) and Cyrenaica (in northeastern Libya) were united in 1934. Tripoli is a region in north Africa (in today's Libya) and a seaport city on the Mediterranean in that region. Long the object of Italian aspirations, Tripoli was finally ceded to Italy by Turkey as a result of the Tripolitan War (1911-12); under Italians the entire western part of the colony of Libya (1912-19) became known as Tripolitania; it was separated from Cyrenaica in 1919 and reunited in 1929. In 1934 the settled portion in the north was divided into four provinces for administrative purposes; one of these was Tripoli. Address: Professor.

278. *Toronto Daily Star (Canada).*1929. Offices of new company. Feb. 15. p. 18.
• ***Summary:*** "A new company has been incorporated to be known as the Milton Oil Refineries Ltd., with a capital of $100,000 and will occupy the building near the C.P.R. station, formerly occupied by the Milton Textile Co."

Note: Milton is located about 20 miles east of Guelph, Ontario, Canada–just west of the western end of Lake Ontario. By March 1930 Milton Oil Refineries would start crushing soybeans.

279. *Toronto Daily Star (Canada).*1929. Milton's new industry. March 5. p. 18.
• ***Summary:*** "The Milton Oil Refineries Ltd... will start at once to get the building ready so as to begin operations on May 1."

280. *Toronto Daily Star (Canada).*1929. Dr. Laszlo Berczeller, a leading Austrian nutrition expert,... March 13.
• ***Summary:*** "... famous for perfecting a flour from soy beans. He says, "Yeast is in some respects of even greater importance to man than milk. Science has proved experimentally the long recognized life-preserving, curative properties of yeast."

Note 1. A small photo shows Laszlo Berczeller.
2. This is part of a larger ad for yeast.

281. Shutt, Frank T. 1929. Feeding stuffs: Miscellaneous, Lab'y No. 89629: Soyabean cake meal. *Canadian Department of Agriculture, Division of Chemistry, Report of the Dominion Chemist.* p. 71, 74. For the year ending March 31, 1928.

• ***Summary:*** "A buff coloured meal, with a pleasant, sweetish odour. This concentrate is characterized by a high protein content and a notable percentage of fat; these features with its low fibre content combine to place soyabean cake meal among the most valuable of the concentrates."

Note: This is the earliest English-language document seen that uses the term "soyabean cake" or "soyabean cake meal" to refer to ground, defatted soybeans. Address: Dominion Chemist, Ottawa, Ontario.

282. *Toronto Daily Star (Canada).*1929. Offer preferred stock Toronto Elevators Ltd.: Issue underwritten by Dominion Securities–Convertible into three common. April 11. p. 17.

• ***Summary:*** To-day Dominion Securities is offering $1,500,000 7 per cent. cumulative convertible preference shares of Toronto Elevators Ltd. The company owns and operates "a 2,000,000 bushel grain elevator recently completed on the Toronto Harbor front, and own or control all the capital stock of the Sarnia Elevator Company Limited, which has a one million bushel elevator on Sarnia harbor.

Note 1. Sarnia is a natural harbor at the southern tip of Lake Huron.

Note 2. Soy is not mentioned.

283. North, J.L. 1929. Plant and weather notes. *Quarterly Summary and Meteorological Readings (Royal Botanic Society of London)* No. 40. p. 7-9. April.

• ***Summary:*** The first section, titled "The Soya Bean" begins: "The experiments to acclimatise the Manchurian Soya Bean begun in the R.B.S. [Royal Botanic Society] Gardens in 1914, have conclusively proved that there are certain varieties of Soya which can be depended upon to ripen seed and give a crop early enough to be harvested in September in this country.

"As regards one brown variety the experimental stage has already been passed. Messrs. Sutton & Sons, of Reading, this year are growing a good many acres of the bean to meet a demand from agriculturists which could not be supplied from last season's crop, and the National Institute of Agricultural Botany, at Cambridge, who tested it last season on a small scale, intend to plant three-quarters of an acre of the bean in 1929 for experimental purposes.

"Other varieties are still under test for earliness, cropping and oil production, and these are being added to this year by a number of new varieties received from Professor McRostie, of Ontario, Canada.

"The following article, which appeared in most of the agricultural papers last November, gives details of the first attempt in this country to grow the Soya Bean commercially for seed: -"

The article, titled "The Soya Bean Grown in England," states: "An agricultural feat of some importance to British farmers has now been successfully performed. This is the acclimatisation of the soya bean, and this year for the first time a fine crop has been grown for seed purposes in England.

"The variety is a hybrid received in 1922 from Professor W. Southworth, of Manitoba Agricultural College, Canada, and in the course of seven years' trials here proved to be not only the most reliable cropper, but the hardiest of any of the sixty varieties tested by me for growth in this country for the last fourteen years.

"Sent to Messrs. Sutton for trial at Reading, it was son on May 2nd, and harvested in the middle of September." Address: F.R. Met. Soc. [Fellow, Royal Meteorological Society], Curator R.B.S. [Royal Botanic Society, London].

284. Dimmock, F. 1929. The soybean in Canada. *Proceedings of the American Soybean Assoc.* 2:47-50. Tenth annual field meeting. Held 22-23 Aug. at Guelph, Ontario, Canada.

• ***Summary:*** "It is doubtful if the acreage of soybeans in Canada at present exceeds 1,000 acres," and that is limited almost entirely to southwestern Ontario. "As far as the speaker is aware, only one firm in Canada uses the soybean in a commercial way. The Vi-tone Co., of Hamilton, Ontario, uses annually about 5,000 bu in the manufacture of a patent food." [The product name is not given. It may have been Soybean Malter Milk and/or Chocolate Malter Milk.] "During 1922-27 Canada imported annually an average of 5,000,000 lb of soybean oil for use in the manufacture of soaps and paints. This oil represents the product of at least 20,000 acres of soybeans." Some farmers have switched to growing soybeans because of the ravages of the European Corn Borer.

"Soybean work at the Dominion Experimental Station, Harrow, Ontario." The soybean is a comparatively new crop in Canada. It has been grown experimentally at Guelph, Ontario, for upwards of 30 years. At Harrow tests have been carried on for 7 years and have just emerged from a preliminary test stage. Upwards of 25 varieties have been tested; 18 of which have been tested for 4 years or more. The average maturity for the earliest variety tested (Ste Annes No. 92) has been 107 days with an average yield of 21.5 bushels per acre of seed. The average maturity of the latest variety tested (A.K.) has been 126 days with an average yield of approximately 40 bu/acre of seed.

Note 1. This is the 2nd earliest document seen (Jan. 2010) that gives soybean production or area statistics for Canada.

Note 2. This is the earliest document seen (Oct. 2004) that mentions the soybean variety Ste Annes No. 92. Address: Prof. and Agrostologist, The Harrow Experiment Station, Harrow, Ontario, Canada.

285. Edmondson, J.B. 1929. Tenth annual meeting of the American Soybean Association at Guelph, Canada. *Proceedings of the American Soybean Assoc.* 2:40-41. Aug.
• ***Summary:*** This meeting of the American Soybean Association in Canada, held 22 and 23 Aug. 1929, began with a tour of southwestern Ontario "under the leadership of Professor W.J. Squirrell, head of the field Husbandry department, and L. Laughland, crop extension specialist, of the Ontario Agricultural College. Starting at Chatham, the group visited the soybean plots at the Ridgetown Experimental Farm and was conducted over the farm by the superintendent, W.R. Reek."

"Other soybean plots which were inspected on the way to Guelph were located on the farm of D.R. McDiarmid and L.D. McLarty, near Ridgetown, and another stop was made on the Weldwood Farm near London [Ontario]. This farm is operated by the publishers of the *Farmer's Advocate*, one of Canada's oldest farm journals. Another stop was made near Stratford, where a beautiful field of soybeans was inspected.

"These plots which were visited represent part of the variety and field testing work that is being carried on by the College. The [soybean varieties] Manchu and O.A.C. No. 211, the standard variety of Ontario, were used chiefly in this work. The tour ended at Guelph where ample arrangements for the entertainment of the guests for the night had been made."

A comprehensive discussion of, "The Soybean in Canada," was given by Prof. F. Dimmock, Agrostologist at The Harrow Experiment Station at Harrow, Ontario. Prof. Squirrell followed with a discussion of the experimental work that has been carried on with the soybean by the Guelph Experiment Station during the past 20 years. President G.I. Christie [Guelph Agricultural College, Guelph, Canada] "then called on a number of soybean men from the audience for short talks, including Robert W. Knister, Northwood, Ontario, one of Canada's pioneer soybean growers," followed by for men from the United States (Indiana and Tennessee).

"At the business meeting which followed, Chas. L. Meharry, Attica, Indiana, chairman of the legislative committee, gave a report of the activities of his committee in securing adequate tariff protection against the importation of cheap soybean products from the Orient. It was felt that progress was being made and Mr. Meharry was continued as chairman of this committee."

A photo shows "A soybean field on the farm of Robert Knister of Kent County, Ontario. Mr. Knister is one of the pioneer growers and deeply interested in the crop."

Note 1. This is the first meeting of the American Soybean Association in Canada.

Note 2. This is the earliest document seen (Dec. 2004) concerning the legislative activities of the American Soybean Association. Address: Secretary, American Soybean Assoc., Clayton, Indiana.

286. Edmondson, J.B. 1929. Secretary's report to the American Soybean Association at Guelph, Ontario–August 23, 1929. *Proceedings of the American Soybean Assoc.* 2:42.
• ***Summary:*** "The American Soybean Association is closing its tenth year of activity. During this time, annual meetings have been held in various states throughout the soybean producing area. In coming to Ontario for the meeting this year, the Association has departed somewhat from custom by venturing into a territory where soybeans are scarcely recognized as a practical farm crop. The wonderful opportunity for soybean expansion in this Province, however, fully justifies this place for the meeting, as we believe the future will reveal to us.

"The development of soybeans in America during the past ten years has been phenomenal and this association, through the cooperation of the various experiment station and extension staffs, has been an important factor in bringing this about. It has recognized from the first that the surest means of establishing soybeans firmly on American farms is through the process of education."

"One of the serious problems that confronts the association is the difficulty of obtaining and maintaining an adequate list of members. Obviously the membership has a direct bearing not only on the scope of influence of the organization, but on its financial welfare as well."

"The lack of adequate funds in the treasury makes the publication of the Proceedings of the 1928 and 1929 meetings an impossible undertaking, unless some plan for financing the enterprise is adopted." Address: Sec'y-Treas [Secretary-Treasurer], American Soybean Assoc., Clayton, Indiana.

287. Morse, W.J. 1929. Letter from Dr. [sic] Morse. Tokyo, Japan, July 20, 1929. *Proceedings of the American Soybean Assoc.* 2:50-52. Tenth annual field meeting. Held 22-23 Aug. at Guelph, Ontario, Canada.
• ***Summary:*** This letter from W.J. Morse was read before the 1929 convention of the American Soybean Association at Guelph, Ontario, Canada. This is the first annual ASA meeting he has missed. He begins with a brief description of the "Oriental Agricultural Exploration Expedition" headed by Mr. P.H. Dorsett and himself. They plan to study soybeans in Japan first. "The largest soybean section is the Island of Hokkaido which has an acreage of 215,212 [planted to soybeans] and produces 3,184,245 bushels of beans" [yield = 14.8 bushels/acre].

"On our arrival and after establishing headquarters in Tokyo, we first began to look up varieties which we might send back to the United States for the 1929 planting. We succeeded in packing up about 100 lots which are now growing in the variety plots at Arlington Farm [Virginia]. In hunting out this seed, we were very much surprised to find the soybeans listed with the garden beans and as garden beans. For the most part these are grown as green vegetable beans. These sorts are black, brown, greenish yellow, and yellow seeded varieties of early, medium, and late types. Some of the yellow seeded varieties are listed as most suitable for bean curd, soy sauce, miso, natto, and confectionery purposes, such as sweet bean paste, candied beans, roasted beans (like our peanuts), and sugared beans." Note: Azuki beans, rather than soybeans, are usually used to make "sweet bean paste" in Japan.

"It is amazing, the extent to which the soybean is used for food in Japan. Whether or not it can be used in the United States in all of the ways used here is extremely doubtful, that is for human food." There is no doubt that American soybeans will be used mostly to produce oil and oil meal. "It may interest you to know that the beans produced in Japan are used entirely for human food, green manure, and planting purposes. The grain varieties have seed of higher quality than those produced in Manchuria and are not used for oil and oil meal production as [are] the beans of Manchuria. The great soybean oil and meal production of the Orient is confined almost entirely to Manchuria.

"Another thing which surprised us greatly was the extent to which soybeans are used for green manure purposes in the rice paddies." The plants are turned under in the mud after water has been run into the paddies.

"Another extensive use of the soybean is for bean curd, or tofu, which is manufactured only... in small shops scattered about the cities and country villages. This curd is used in many ways, being the meat of the poorer classes. It is used, however, quite generally in making bean-curd soup [miso soup with tofu] which is sometimes served at breakfast and nearly always at supper. The bean curd is peddled about from house to house by men with two tubs suspended from a bamboo pole over their shoulders. The sound of the little horn of the bean curd man as he announces his coming has become quite a familiar sound to our ears as we go along the streets or hear him pass under our office windows.

"Soy sauce is manufactured on a very large scale and is universally used by the Japanese, rich and poor. We have had the pleasure of visiting the large experimental laboratory of an experiment station given wholly to soy sauce and saké experiments. In Hokkaido we visited a soy sauce factory, the buildings of which covered several acres. In one of the curing vat buildings where the mash is allowed to cure for about 18 months, we counted ninety large vats.

"Soybeans are used to a very considerable extent for confectionery purposes. The large black, brown, and green seeded varieties are used in making sweet bean paste which is put up in small thin slabs and then done up in very attractive packages. Roasted beans, similar to our roasted peanuts, may be found at nearly all confectionery stores. Roasted beans are also sugar coated and others are sprinkled with small pieces of sea-weed during the roasting, which gives an appearance of mottled beans (rather a familiar sight to our mid-west farmers). Then, there are the candied beans, that is, beans which have been boiled in syrup.

"Miso and natto are two forms of bean foods in which the beans are first cooked and then treated with certain bacteria [sic, microorganisms]. Miso is used largely in soups which are consumed at breakfast. Both of these foods are quite largely used.

"Other products used for food are roasted soybean flour, soybean vermicelli, pickled green beans in the pod, yuba–the film produced by boiling soybean milk, and dried frozen bean curd." Note 1. This is the earliest English-language document seen (Feb. 2004) that uses the term "dried frozen bean curd" to refer to dried-frozen tofu.

Note 2. This is the earliest English-language document seen (Dec. 2005) that contains the term "roasted soybean flour."

"Another surprising thing is the very extensive use of the soybean as a green vegetable bean. As early as May, small bundles of plants with full grown pods were seen on the market. At the present time the market is virtually flooded with bundles of plants with full grown pods, the seeds of which are also full grown. The pods are boiled in salt water and the beans eaten from the pods.

"During the past two weeks we have visited large sections near Tokyo where soybeans are grown for green vegetable purposes. The beans are grown in rows 2 feet apart and in 95 per cent of the cases there are other crops planted between the bean rows, such as early cabbage, onions, lilies (for the edible bulbs), late varieties of soybeans, late plantings of soybeans, and other early truck crops." Address: USDA, Washington, DC.

288. *Proceedings of the American Soybean Assoc.*1929. Preface. Officers of the Association. Special committees. 2:2-3.

• ***Summary:*** This is a preface to this volume of Proceedings, which covers the annual meetings held in 1928 and 1929. The main work of the Association has been to educate and to provide accurate information about soybeans. This has been a challenge "since many farmers have allowed their enthusiasm for this crop to out run their knowledge concerning it. To meet this situation, the Association has depended on two lines of endeavor; the holding of annual meetings in cooperation with the various experiment stations, for the study and discussion of soybean problems,

and the publishing of reports of these meetings that the information thus evolved may be given to the interested public in printed form. The first of these reports was published two years ago, in which the reports of the first seven meetings were printed..."

Officers of the Association–1929: President–G.I. Christie, Guelph Agricultural College, Guelph, Canada. Vice-President–C.K. McClelland, Fayetteville, Arkansas. Secretary-Treasurer–J.B. Edmondson, Clayton, Indiana. Directors–J.S. Cutler, Columbus, Ohio. Harvey Clapp, Accotink, Virginia. E.J. Delwiche, Green Bay, Wisconsin. J.B. Buchanan, Guelph, Canada.

Officers–1930: President–W.L. Burlison, Urbana, Illinois. Vice-President–F.S. Wilkins, Ames, Iowa. Secretary-Treasurer–J.B. Edmondson, Clayton, Indiana. Directors–Harvey Clapp, Accotink, Virginia. Roy Chasteen, Crothersville, Indiana. J.B. Buchanan, Guelph, Canada. W.C. Eldridge, Columbia, Missouri.

"Special committees: Legislative–Charles L. Meharry, Attica, Indiana. Walter Godchaux, New Orleans, Louisiana. Harvey Clay, Accotink, Virginia. Editing–Keller E. Beeson, Lafayette, Indiana. J.B. Edmondson, Clayton, Indiana."

289. Squirrell, W.J. 1929. Experience with soybeans in Ontario. *Proceedings of the American Soybean Assoc.* 2:43-44. Tenth annual field meeting. Held 22-23 Aug. at Guelph, Ontario, Canada.

• ***Summary:*** "The soybean crop has been grown experimentally at the Experiment Station at Guelph since 1894 and variety material has been distributed for co-operative experiments to farmers since 1900. In all over one hundred varieties of soybeans have been under test at this station, in addition to experiments in dates of seeding, rates of seeding, methods of cultivation and mixture experiments. The O.A.C. No. 211 variety, which is a plant selected strain of the Habaro variety which latter variety was imported direct from Japan by the Ontario Agricultural College, has been the outstanding variety under test... It is now grown to a limited extent in southwestern Ontario and is the only variety eligible for crop registration in Canada...

"In order to bring this crop into greater prominence and to convince farmers of the value of both the forage and the grain a number of demonstrations under the direction of Dr. G.I. Christie were planned in the spring of 1929. These demonstrations were placed in the principal counties of central and southwestern Ontario, in most cases three in each county. Each demonstration consisted of an area of two acres, one acre growing the O.A.C. 211 and the other acre the Manchu varieties. One-half of each variety was cut for forage and the other half cut for seed...

"One of the factors effecting the increase in area of the soybean crop in Ontario is the lack of machinery to remove the oil from the soybean. A greater appreciation of the value of this crop by farmers and industrialists will before many years undoubtedly result in a greatly increased acreage of soybeans in Ontario." Address: Prof., Dep. of Field Husbandry, Ontario Agricultural College [O.A.C.].

290. Ste. Annes No. 92 / Ste. Anne's / Sainte Anne: New Canadian domestic soybean variety. 1929.

• ***Summary:*** Sources: Dimmock, F. 1929. "The soybean in Canada." *Proceedings of the American Soybean Assoc.* 2:47-50. See p. 49. "Soybean work at the Dominion Experimental Station, Harrow, Ontario." The soybean is a comparatively new crop in Canada. It has been grown experimentally at Guelph, Ontario, for upwards of 30 years. At Harrow tests have been carried on for 7 years and have just emerged from a preliminary test stage. Upwards of 25 varieties have been tested; 18 of which have been tested for 4 years or more. The average maturity for the earliest variety tested (Ste Annes No. 92) has been 107 days with an average yield of 21.5 bushels per acre of seed.

Shutt, Frank T. 1931. "Soybeans: Influence of heredity and environment on the protein and oil contents of soybeans, as grown at Harrow and Ottawa, crops of 1928-29." *Canadian Department of Agriculture, Division of Chemistry, Report of the Dominion Chemist.* p. 54-57. For the year ending March 31, 1930. See p. 55. Discusses the influence of heredity and environment on the content of protein and oil in about 18 varieties of soybeans grown at Harrow and Ottawa in 1928 and 1929. Two tables (p. 55) list the varieties grown at Harrow these two years: One of these, "Ste. Annes, 92" (also spelled "Ste. Anne's No. 92"–p. 56) is high in protein.

*Fifty years of progress on Dominion experimental farms, 1886-1936.* 1939. Ottawa, Ontario, Canada: J.O. Patenaude. 158 p. See p. 20. "Beginnings in Canada: In Canada a school of agriculture, now affiliated with the faculty of Arts of Laval University, was established at Ste. Anne de la Pocatière in 1859. Experimental work was carried on in connection with the Ontario Agricultural College, founded in 1873." A map (p. 6) shows that the "Ste. Anne" station is located in today's Quebec province, just south of the St. Lawrence River.

Black, M.A. 1939. "Soya beans." *New Zealand J. of Science and Technology* 21(1A):46a-60a. June. See p. 53A-54A. Tables 5 and 7 shows the average and range in the number of days to maturity, and the yields (1935-1938) for 14 soybean varieties tested in three seasons, two at Palmerston North, three at Ruakura, in New Zealand. One of these is "St. Annes." In table 7, they are listed in ascending order of days to maturity: St. Annes (141 days) is the fourth earliest; Manitoba Brown (128 days) is the earliest. However St. Annes had a very low yield (11.2 bu/acre).

Elliott, H.G. 1946. "The soybean. Its possibilities in W.A." [Western Australia]. *J. of Agriculture, Western Australia* 23(4):285-93. Dec. A table (p. 293) lists 18

soybean varieties obtained from Canada and tested in Western Australia. One of these, “Ste. Anne’s No. 92" was the earliest variety tested (108 days to maturity) but gave a low yield (21.68 bu/acre).

Morse, W.J. 1948. “Soybean varietal names used to date.” Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 7. “Sainte Anne. Canada station selection.”

Note: What is the source of the name of this variety? Macdonald College is part of McGill University, which is located at Ste-Anne-de-Bellevue, Quebec, Canada. The two previous soybean varieties developed in Quebec (Quebec No. 92 and Quebec No. 537) were both developed at Macdonald College by Leonard Silvanus Klinck by 1914.

291. Smith, W.L. 1929. Forty years of one man’s life [Charles Zavitz]. *Canadian Countryman (The)* 18:7, 36-37. Dec. 7.

• ***Summary:*** An excellent biography of Dr. C.A. Zavitz, covering the 41 years from June 1886 to June 1927.

The Ontario Agricultural College (OAC) was still a small organization when Zavitz, “having just finished the two-year course at the College, was asked to take a junior position on the staff of the struggling institution. Previous to his elevation from the status of student, the staff consisted of seven, with Dr. Mills at the head, and the number of students who had taken the regular and special courses was 105. The structural equipment was in keeping, consisting as it did of the old main building, a frame barn, a small green house, and a brick building that served as creamery.”

The students labored hard in the 1880s, “half of each day being spent on practical work on land or in buildings and half at lectures or studies... The members of the staff worked even harder than the students. Dr. Zavitz, for example, was required to assist both Prof. Brown in the agricultural and Prof. C.C. James in the chemistry department, the double duties covering such varied activities as field work, experiments in live stock feeding and dairying, as well as laboratory work in the chemistry building. Nor was that all. While carrying on these double duties he continued the studies which enabled him to take his degree in 1888, affiliation with Toronto University having meantime taken place. The examination for this degree brought honors in ten out of eleven subjects.

“Dr. Zavitz’s real work began, however, when he was made head of a department which began the field experiments and eventually included plant breeding as well. This department, like the College as a whole, commenced in a very modest way. A storage building back of the chemistry building served as an office. Space for seeds to be used in experimental work was found among bottles and utensils in the basement... For the first five or six years, Zavitz himself performed all the work of seeding the plots and he also fed the miniature machine used in threshing the grain grown thereon.

“There had been field experiments at the college before the student days of Dr. Zavitz. Even the Experimental Union which grew out of these experiments had its birth as far back as 1879, Lewis Toole, of Mount Albert being father of the Union. It was under Dr. Zavitz, however, that the work on the experimental plots at the college farm, and the extension of that work on privately owned farms all over the Province, attained full development. In the course of time nearly 3,000 varieties of seeds for farm crops were obtained, including many from abroad, and from first to last over 100,000 individual experiments were carried out for the purpose of determining which varieties were most suitable for reproduction on Ontario farms.”

Describes how the complex Experimental Union system works; its farmer members grew from 12 the first year to 3,000 or more later on. “Ultimately the work was not confined to testing existing varieties but extended to the creation of new ones, a much more difficult operation.” Dr. Zavitz consulted with Luther Burbank, the master plant breeder from California, when learning how to create new varieties.

The work of Dr. Zavitz has been widely recognized at home and abroad. “By special invitation he has lectured before the British Association for the Advancement of Agriculture; the American Association for the same; the International Congress on Hybridization and Plant Breeding at London, England; and the British Association on Agricultural Education at Glasgow, Scotland. He has also been elected to honorary fellowship in the American Association for the Advancement of Science; Canadian Society of Technical Agriculturists; American Society of Agronomy; Canadian Seed Growers’ Association; and has been made honorary president both of the Canadian Seed Growers’ Association and the Ontario Experimental Union.”

A large photo shows a painting of Dr. Zavitz in his academic robes by Charles MacGregor; it is hung in Memorial Hall, OAC, Guelph, Ontario.

292. **Product Name:** Maruten Miso.
**Manufacturer’s Name:** Amano Miso Seizo-sho (Amano Brothers).
**Manufacturer’s Address:** 2141 Powell St., Vancouver, BC, Canada. Phone: High. 5526 L.
**Date of Introduction:** 1929.
**New Product–Documentation:** Hokubei Nenkan–The North American Times Year Book. 1936, p. 254. Amano Miso Seizô-sho. Mr. Teiichi? (or Otokazu? or Kuniichi? or Chikakazu? or Tsugikazu?). 2141 Powell St., Vancouver, BC. Phone: High. 5526 L.

The New Canadian. 1941. Aug. 22. p. 8. “For 12 years Mr. [Teiichi] Amano has been in the business of making

Japanese miso."

Vancouver City Directories. 1952-66. The first listing is 1952: Amano, T. Co. (T. Amano). Soya sauce and rice paste manufacturers. 1139 E. Hastings St. In 1955 the occupation had changed to manufacturers, importers, and exporters." In 1966 it was: Amano, T., Co. Ltd. (T. Amano, president). Importers. 1139 E. Hastings.

Interview with George Tsuchiya, general manager of Amano. 1981. Nov. 24; Shurtleff & Aoyagi. 1983. The Book of Miso. 2nd ed. p. 234. "There were several semi-commercial makers of miso and shoyu in Canada, in the Vancouver area, prior to World War I, and at least one commercial miso manufacturer was in the area prior to 1927. In that year [sic, in 1929] Mr. T. Amano started Amano Brothers. p. 255. Listed as T. Amano Co. Ltd., 1139 E. Hastings St. In 1982 the T. Amano Co. was making a red miso and a sweet white miso."

Talk with Michael Weiner. 1987. Dec. 16. Amano is presently the largest manufacturer of miso in Canada. They may soon break ground for a large, new miso and soy sauce plant.

Note: This is the earliest known commercial miso product made in Canada.

293. American Seed Trade Association. 1929. Frank C. Bruce. *Yearbook and Proceedings of the Annual Convention.* See p. 42. *

• ***Summary:*** "Of John A. Bruce & Co., Hamilton [Ontario], Canada, died in his home at the city on July 9th, 1928, after a lingering illness.

"Mr. Bruce was born in Pebbleshire, Scotland, 91 years ago. In 1858 he came to Hamilton and with his brother, Charles, founded the Bruce Seed Store, now known as John A. Bruce & Co., with a business extending..."

294. United States Tariff Commission. comp. 1929. Summary of tariff information, 1929 on Tariff Act of 1922. Schedule 1. Chemicals, oils, and paints. Washington, DC: U.S. Government Printing Office. 419 + xv p. Printed for the use of the Committee on Ways and Means, House of Representatives.

• ***Summary:*** The section titled "Soy-Bean Oil" (p. 283-84) briefly discusses: Description and uses. Production of soy bean oil in the United States (1922-1928). Imports into the United States (1919-1928). Exports (1922-28; They go mainly to Cuba, the Dominican Republic, British South Africa, and Canada–but we are not told how much was exported to individual countries or when those exports began). Cost of production. Prices (1923-1928). Competitive conditions (mainly for use as a soap oil, a drying oil, and as ensilage).

Note: This is the earliest document seen (Dec. 2008) concerning soybean products (soy oil) in the Dominican Republic. This document contains the earliest date seen for soybean products (soy oil) in the Dominican Republic (definitely by 1928, perhaps as early as 1922); soybeans as such had not yet been reported by that date. Address: Washington, DC.

295. Vi-Tone Company. 1929. Jack and Jill both love Vi-Ton [sic, Vi-Tone] (Ad). *Proceedings of the American Soybean Assoc.* 2:37.

• ***Summary:*** This half page black-and-white ad is for Vi-Tone, a food tonic beverage based on soy milk and dairy milk in malt chocolate flavor. "No matter whether the boy or girl is two or twenty-two, Vi-Tone will make instant friends.

"You know, as soon as you taste Vi-Tone, that it is different–better and more appetizing than ordinary beverages.

"Vi-Tone is a scientific combination of the Soy Bean with malt extract and milk–rich in protein and vitamin content–and deliciously flavored with chocolate."

An illustration shows a small can of Vi-Tone, which appears to be a powder. Near the top of the label: "Malt Chocolate Flavor." It can be served hot or cold. "A tonic food beverage."

Note: This is the earliest document seen (July 2001) that advertises or markets soymilk. Address: Hamilton [Ontario, Canada].

296. *Toronto Daily Star (Canada).*1930. Classified ad: Financial. Jan. 4. p. 25.

• ***Summary:*** "100 preferred shares Milton Oil stock, par value $10 per share, paying 7 per cent; 50 shares common; mill at Milton, Ont. [Ontario], now producing cotton seed oil, the only mill in Canada; sacrifice, $600. Particulars, phone Kenwood 4576F."

Note: This company is probably Milton Oil Refineries (Milton, Ontario), which began crushing soybeans in March 1930.

297. *Toronto Daily Star (Canada).*1930. Higher tariff asked on fine cotton yarns. Jan. 18. p. 26.

• ***Summary:*** "Friday, Feb. 21.–First hearing of reference No. 153, and application by Milton Oil Refineries, Ltd., Milton, for downward revision of the tariff on cotton seed;..."

298. Dorsett, P.H.; Morse, W.J. 1930. Visit to the Noda Shoyu Company, Ltd. in Chiba, Japan (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: USDA Bureau of Plant Industry, Foreign Plant Introduction and Forage Crop Investigations. 7,410 p. Unpublished log.

• ***Summary:*** Pages 3465-67 (7 Jan. 1930). "Today we really got started on our work of looking up and getting information about soybean products. In accordance with plans made yesterday, we left Tokyo this morning (Ueno Station) at 8:15 for Noda-Machi, Japan, where we arrived at 9:45. We went direct to the office of The Noda Shoyu Company, Ltd., of Noda-Machi, Prefecture of Chiba, Japan, makers of the famed Kikkoman Shoyu.

"This company embracing 19 plants, is one of, if not the largest plants in the world brewing shoyu sauce. According to their literature, Kikkoman Shoyu was first brewed by Mr. Saheiji Mogi, in the second year of Meiwa [sic, Hoei?] (corresponding to the year 1704) in Noda-Machi, Japan.

"We met Mr. Ota, one of the assistant directors, we also met Mr. Hichizaemon [Shichizaemon] Mogi, President and Director, also a Mr. Jutaro Namiki. We spent about 1½ hours with these gentlemen in the office. Then Mr. Ota and Mr. Namiki showed us over one of their large plants. It impressed us as an up-to-date modern institution. We were in the grading and mixing room. They have 30 incubating chambers or curing rooms where the germ on the 50-50 mixture of soybean and wheat mash is grown.

"The cement vats, or aging vats, of which there are 1,500 under one roof, are made of cement and are 12 feet square and about 8 feet in depth.

"In the manufacture of shoyu sauce, this concern uses annually about 20,000 bushels of soybeans, primarily from Manchuria, and also 20,000 bushels of wheat, Japanese grown when available. They import from Australia. This year, however, they are getting their supply of wheat from Canada.

"They have 200 square (about 4 ft. by 4 ft.) hydraulic presses and 200 oblong ones about 4 ft. by 6 ft. They age their shoyu sauce 1½ years in the curing vats."

Page 3466-68. Photos show: (1) Racks of small trays, outdoors, each about 2 inches deep, 18 inches long, and 10-12 inches wide, used to cure soybean and wheat mash [koji] for making shoyu sauce (negative #44709). (2) A nearby view of the interior of one of the small trays (#44710). (3) Many round bundles of cask stock of spruce, stored outdoors. The wood will be used to make kegs for storing shoyu sauce. A part of one warehouse of the Noda Shoyu Co. is in the background (#44711). (4) A horse pulling a cart on a railroad track. On the cart are bundles of spruce stock that will be used to make soy sauce casks (#44712). (5) A nearby view of portions of ricks or bundles of short pieces of spruce for staves, tops and bottoms of small casks for shoyu sauce (#44713).

Page 3474. A photo shows a bottle (with label) of soy sauce made by Noda Shoyu Co., and materials used in its manufacture, including salt from Formosa, wheat from Canada, and soybeans from Manchuria (negative #44734).

Page 3482. A photo shows three identical bottles of Kikkoman brand soy sauce, each from a different angle so that all parts of the label are visible. Each bottle is 7½ inches tall and 2 inches in diameter, and holds one-fifth liter of sauce. Obtained on Jan. 7 from the Noda Shoyu Co. D&M item #3074. This company is the largest in the Orient (negative #44742). Address: Agricultural Explorers, from USDA, Washington, DC.

299. Dorsett, P.H.; Morse, W.J. 1930. Miso in Japan (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: USDA Bureau of Plant Industry, Foreign Plant Introduction and Forage Crop Investigations. 7,410 p. Unpublished log.

• ***Summary:*** * = Best photos. Page 3487 (8 Jan. 1930). Photos of the side and top of a small wooden tub (6 inches diameter, 4 inches high) of *Kairyo Hishio,* made by the Takagawa Co., Noda, Japan. "This form of miso is mixed with rice and eaten." The tub is bound with strips of bamboo and tied with three strands of rice straw rope. Note: Hishio is a seasoning with a consistency somewhat like that of applesauce–much softer than that of miso. Page 3488. Photos shows the same product in small jars 2½ inches in diameter and 3½ inches high.

Page 3596 (17 Jan. 1930, Tokyo). "Went to the Chikuma Miso Factory, one of the largest concerns of this kind we have seen. They use 200 bushels of dry soybeans and an equal amount of rice per day." Pages 3598-3601. Photos show: Catties or casks of miso in front of Chikuma Miso Factory. Same view showing paper covering cask. Loading casks of miso onto truck in front of factory. "Ricks of just recently returned empty catties in front of Chikuma Miso Factory ready for cleaning and refilling." Two Japanese men standing by empty and filled catties of miso. Inside Chikuma Miso Factory, two men standing by a tall vat of miso with four casks on the floor in front of them. One man is holding a long pole.*

Pages 3633-36 (21 Jan. 1930, Tokyo). Photos show: Miso ingredients on a bamboo sheathe/culm. Five different kinds of miso on a bamboo sheathe. Miso as sold wrapped in a bamboo sheathe plus the Japanese label measuring 4.6 by 7 inches. Pages 3733, 35, 38-39 (31 Jan. 1930, Tokyo). Photos show: (1) A cylinder of commercial miso (3 inches diameter, 8 inches long) with labels, side and top views. (2) Miso (which contains turtle blood) in a small eight-sided wooden box (3¼ inches across), with label. (3) Two glass jars containing miso, with labels; side and top views. (4) Two small square boxes (4 by 4 inches) containing miso, one closed the other with top off to show miso. Page 3818. Photo of miso wafers with package, purchased in a confectionary shop in Yokohama, Feb. 7. "These wafers are very good." Page 3820. Photo of two packages of Okazaki

Miso [Hatcho Miso], "said to be a famous brand." One is wrapped (apparently in bamboo sheath, showing label), one unwrapped. Package is 3½ inches wide and 8 inches long. Page 3895. Photo of glass jar of Rikyu miso with label, purchased in Tokyo Feb. 13 for 50 sen a jar. Page 3897. Photo of small jar of Kinzanji Miso (3 views with label). Sells in Tokyo for 30 sen each. Page 3902. Photo of small wooden box of "Tori [chicken] Miso." Sells in Tokyo for 35 sen each.

Page 3974-75 (Feb. 21). Visit Sendai Miso Jozo Jo, Sendaitenai, Oimachi, Tokyo. "Learned that much of their miso for local consumption is only aged for a week or ten days to two weeks, but that Miso for export trade to Canada, the United States and other countries is aged much longer, a year or more. This concern uses annually about 50,000 bushels of soybeans and an equal amount of rice for making Miso–plus 25,000 pounds of salt. Their yearly output is about 12,000,000 pounds. The wooden casks used to pack the Miso contain 200 pounds net weight and sell wholesale at Yen 10.00 to 13.00 per cask. For shipment abroad they use the standard 4½ gallon soy sauce wooden cask. It has a capacity of about 40 pounds and sells delivered at San Francisco at Yen 2.50 to 3.00 per cask."

Pages 3978-79. Photos taken at Sendai Miso Jozo in Tokyo show: (1) Steamed rice spread on out rice straw mats in a wave pattern covering the entire floor of a large room.* After cooling, rice bacteria (Koji [sic, koji starter]) is added, and after three days the malted rice is mixed with boiled or steamed soybeans in the making of soybean miso. (2) Miso mashing tubs *(usu)* used for mashing boiled soybeans when making miso.* Each tub is made from a hollowed tree trunk and first used by Lord Governor Date in the "Year of Kaiei" about 300 years before the start of the Meiji Period (in 1868). Note: Daté Masamune (DAH-tay Mah-sah-MU-nay; lived 1567-1636) of Sendai was the first Japanese to make miso in a factory, starting in the early 1600s.

Page 4022, 4024 (Feb. 23). Photos: A slice of large white Japanese radish *(daikon)* which has been preserved in soybean miso. Thin sugared cookies [rice crackers] named *Satou Miso Senbei,* in which soybean miso has been mixed.

Pages 4082-86. Photos of handsome boxes of miso with labels each purchased in the food department of a large department store in Tokyo. (1) Box (4½ by 6 inches) of Kinzanji Miso. "Kinzanji is the name of a temple in Kyoto and this miso was first concocted by a priest in this temple." (2) Box (4½ by 6 inches) of Saikyo Miso. "A form of white miso sweetened, and containing a large amount of rice." (3) Box of *Wasabi miso,* Japanese horseradish mixed with miso. (4) Box of *Tori miso,* which has chicken meat in it. (5) Box of *Goma miso,* which has sesame seeds mixed in.

Page 4140. Photo of rice bacteria (koji [sic, koji starter]) from T. Aseda Miso Factory, Tokyo, Feb. 28. Name: *Kuroban Moyashi.* Used in the production of miso malt [rice koji]. The contents of this package will inoculate 5 koku (25 bushels) of rice. Price: 0.35.

Pages 4313-22 (12 March 1930). Went to Shimbashi Station and took the electric tram for Oimachi, Tokyo, to visit the Sendai Miso Jozojo Miso factory. Photos: (1) Interior of miso mixing room. Bean crusher and mixer were invented by this company. (2) Shipping room, where casks of miso are weighed and loaded into trucks for delivery.* (3) Large soybean steamer with live steam. (4) 300 year old *usu* for crushing soybeans. (5) View of a room full of wooden miso tanks/casks [vats] curing from above the top of the vats.* The top of each vat is weighted with rocks. Each room contains more than 80 vats. Each cask is about 7 feet high and 8-10 feet in diameter. The miso is aged here for a year or more. The company has several such rooms. (6) Soybean steamer in operation. (7) A large pile of rice koji ready to mix with an equal amount of cooked soybeans. To the right is a portion of a small wooden mixing tub with bamboo hoops. (8) Two wooden casks [kegs] of miso, packed and ready to ship to San Francisco, California.* "They have considerable trade there for this product." (9) A cooper at the Sendai Miso Factory seated on the ground and making bamboo hoops for hooping miso casks.*

Page 4344-45 (March 10). Photos: (1) Small box and label of white miso *(Shiro miso)* made from polished rice and soybeans. Purchased from Mikonaya Miso Co., Tokyo. The three characters are written horizontally from right to left. White miso is not used as extensively as red miso. It is "used on special occasions in soups and eaten as cheese with other foods. White miso is much more expensive than red and has more rice in it." (2) Small circular box of rice koji from Mikawaya Miso Co. Can be used to make white miso or sake–rice wine.

Page 4390-91 (20 March 1930, Tokyo). Photos: (1) Boxes of the various ingredients used in making Sendai Miso. From left to right: Dry soybeans, soaked soybeans, polished rice, steamed rice, steamed rice with koji and salt, rice mould (koji), salt mixed with steamed soybeans and moulded rice, finely ground soybeans, coarse miso one week old, coarse miso one year old. "These were received from the Sendai Miso Factory, Tokyo, Japan, March 20, 1930." (2) Vegetables preserved in red soybean miso. The vegetables are Japanese white radish *(daikon)*, cucumber, burdock root, small vegetable melon *[uri]* and egg plant [eggplant].

Page 4444-45 (23 March 1930). Photos at the Sendai Miso Factory, Tokyo: (1) Steamed soybeans cooling on a floor in a wave pattern. "After the beans are cooled, they are mixed thoroughly with molded rice [koji] and salt (shown in the background in a mixing machine). The mixture is placed in large curing vats and allowed to cure for about three months." (2) A second view of the same room from a different angle. Address: Agricultural Explorers, from USDA, Washington, DC.

300. Colquette, R.D. 1930. Dr. Zavitz of the O.A.C.: The Dean of Canadian Field Husbandmen has had a distinguished career as a teacher, lecturer, and scientist. *Country Guide (The) (Winnipeg, Manitoba).* Feb. 1. p. 5, 33-35.

• ***Summary:*** A superb biography of Dr. Charles V. Zavitz–well researched, well written and detailed. Begins with a description of how, 140 years ago, when "United Empire Loyalists were flocking to Canada, three brothers named Zavitz [who were Quakers] left their home near Philadelphia, made their way through the primeval forest to the Niagara frontier, crossed over the river and settled within hearing of the thunder of the Falls."

Later one of the brothers pushed on westward, settled west of London, Ontario, in Middlesex County, and finally established a branch of the family at Poplar Hill. The young republic of America "had just won the revolutionary war and was little disposed to tolerate the peaceful doctrines of the Society of Friends."

Dr. Charles Zavitz is the great grandson of the man who settled west of London, Ontario. His achievements have made the name of Zavitz known "far beyond the community of Poplar Hill, where children of the fifth generation bearing the name have born; far indeed beyond the confines of Canada. For in the 40 years during which he was associated with the Ontario Agricultural College, his pioneer work in the realm of field husbandry has made his name familiar in most of the agricultural countries of the modern world."

Photos show: (1) The plots at OAC where Dr. Zavitz' research work was done. (2) Thirteen varieties of field crops, including soy beans, wheat, oats, barley, peas, rye, and mangels. In front of them is his grandson, seated crosslegged. (3) The Field Husbandry Building at OAC, built from plans made to the last detail by Dr. Zavitz and his staff.

301. *Toronto Daily Star (Canada).*1930. Milton: Soya bean plant in Milton is new Canadian industry. For the manufacture of meal which ranks high as cattle feed: Also edible oils. Governments to encourage the growth of soya beans in Dominion. March 1. p. 28.

• ***Summary:*** "Milton, March 1.–The first mill in Canada for the manufacture of meal and edible oils from the soya bean and cotton seed will be in operation here shortly." The new company, Milton Oil Refineries Ltd., has one complete crushing unit installed and ready to begin, and has a carload of cotton seed, imported from the United States, waiting to be crushed nearby. This is the first carload of seed imported into Canada for the purpose of milling [crushing].

The meal from both seeds, which remains after the oil is extracted, contains 41-45% protein and is an excellent cattle feed.

"The oil of the soya bean is termed by the enthusiasts as 'the oil of a thousand uses'"; it can be used to make anything from automobile parts to salad oil and oil for deep-frying fish and chips. Coat buttons, baby foods, and breakfast cereals can all contain some part of the soya bean. The little brown bean can be used in the treatment of diabetes. A bread containing 10% soya flour, it is claimed, will retain its freshness for 2-4 weeks. Domestic shortening is now largely made of soya bean oil or cotton seed oil.

Beans can be grown here: Although the company will import all the cotton seed and soya beans it needs from the United States, efforts are presently being made, by the Dominion and provincial departments of agriculture, to interest Ontario farmers in growing soya beans as a new cash crop. It is said that the beans can be cultivated on any land suitable for growing corn.

Describes how soya beans are crushed by [hydraulic] presses at Milton to make oil and meal. The crude oil is shipped away in tank cars. The meal may be finely ground to make flour.

The owners and officers of the new company foresee a large market for their products in and around Toronto. The factory is presently able to turn out one ton of product an hour, but there is room in the current quarters for adding nine more presses.

"While experiments have been conducted at the Ontario Agricultural college, Guelph, for the last 17 or 18 years [sic, since 1893 = last 37 years] on soya bean culture, and there are upwards of [more than] 500 acres grown in Essex county alone, the cultivation of the bean has reached its highest point in the United States. In 1909 there were 2,000 acres under cultivation there, while for 1929 the acreage is estimated at 3,000,000 acres. Last year Canada produced 30,000 bushels of the beans, which were largely sold in the United States, since there was no mill to handle them in Canada."

Ted Harop, who owns a 240-acre farm north of Milton, has been growing soya beans for the past 7-8 years; he has been planting them with his corn and ensiling the two crops together. He said he thought soya beans could be grown successfully in that district for use in a mill, such as the one at Milton.

Discusses how to cultivate and inoculate the soya bean; the inoculum is available from the various departments of agriculture. It costs only 25 cents to inoculate one bushel.

A long passage about the soya bean from the Encyclopaedia Britannica is quoted.

Note: This is the earliest document seen (Jan. 2010) concerning a soybean crushing company in Canada. Milton Oil Refineries Ltd. (Milton, Ontario) began crushing soybeans in March 1930. Address: Special to The Star by staff reporter.

302. **Product Name:** Soybean Oil, and Soybean Oil Meal.

**Manufacturer's Name:** Milton Oil Refineries, Ltd. Renamed Canadian Soyabeans Ltd. by March 1935.
**Manufacturer's Address:** Milton, ONT, Canada.
**Date of Introduction:** 1930. March.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** *Toronto Daily Star* (Canada). 1930. "Milton: Soya bean plant in Milton is new Canadian industry..." March 1. p. 28. "Milton, March 1.–The first mill in Canada for the manufacture of meal and edible oils from the soya bean and cotton seed will be in operation here shortly." The new company, Milton Oil Refineries Ltd., has one complete crushing unit installed and ready to begin, and has a carload of cotton seed, imported from the United States, waiting to be crushed nearby. Note: It is unclear exactly when this company started to crush soya beans.

*Agricultural and Industrial Progress in Canada.* 1935. "Linseed oil." 17(2):27-28. Feb. "The production of the Canadian linseed and soy bean oil industry in 1933, according to a report of the Dominion Bureau of Statistics, was valued at $2,086,000. The number of plants in operation was ten and the capital investment $3,022,000.

"Of these ten plants two used soy beans as their raw material, namely, The Canadian Soyabeans Limited of Milton, and the Soybean Oil and Meal Co-operative Company of Canada Limited of Chatham, both in southwestern Ontario." The value of soy-bean oil and meal was no more than $49,071.

F. Dimmock. 1936. "Division of Forage Plants: A report on the present status of the soybean industry, particularly in western Ontario." In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. Appendix "B." p. B-1 to B-2. "During the fall of 1929 the first oil mill for processing soybeans was established at Milton, Ontario, under the name of the Milton Oil Refineries, Limited. This mill got off to a poor start, and for various reasons such as poor management, poor machinery, and probably poor financing, has never operated with any degree of success. It has changed hands several times but is not operating at present. It uses the hydraulic press method of extraction."

C.A. MacConkey. 1935. Soybeans. Ottawa, Ontario, Canada: National Research Council. p. 65. "Firms Engaged in the Soybean Industry in Canada." Canadian Soyabeans Ltd., Milton, Ontario.

Note: Formerly named Milton Oil Refineries Ltd. This was the earliest soybean crusher in Canada. These are the earliest known commercial products made by a soybean crusher in Canada.

303. Tamblyn. 1930. Bargains for the entire week (Ad). *Toronto Daily Star (Canada)*. May 30. p. 10.
• ***Summary:*** In the upper right corner of this full-page ad is a small display ad: "Vi-Tone–is equal in nourishment to many times its bulk in ordinary food. A soya bean product. 49¢ and $1.99."

An illustration shows a person's hand holding a spoon, used to measure some Vi-Tone from a canister into a steaming cup.

Note: Tamblyn is a chain of drug stores which dates back to the early 1900s in Toronto. Address: Toronto.

304. Vi-Tone Company. 1930. Ask the man who trained the champion marathon swimmer about Vi-Tone (Ad). *Toronto Daily Star (Canada)*. Aug. 30. p. 10.
• ***Summary:*** "Johnny Walker knows his job. He's been training athletes for a great many years. He knows the importance of proper diet for healthy vigorous physical condition.

"That is why Johnny Walker specified Vi-Tone for the winner of the 1930 Marathon Swim, and Marvin Nelson agrees with him when he says 'Vi-Tone is the best tonic food beverage I have ever used.'"

Lists other outstanding swimmers who are Vi-Tone boosters.

"Vi-Tone is a scientific combination of health-giving food elements of the Soya Bean, plus Malt Extract and Milk–ingredients which are easily assimilated and provide extra nourishment in concentrated form. Vi-Tone has an appetizing flavor all its own.

"Obtainable at all good grocers and druggists throughout Canada–Ask for Vi-Tone by name.

"Vi-Tone for health." Address: [Hamilton, ONT, Canada].

305. *Toronto Daily Star (Canada).*1930. Toronto Elevators. Sept. 18. p. 21.
• ***Summary:*** "Earnings of Toronto Elevators, Limited, for the year which will be brought to a close on the thirtieth of this month are reported in circles close to the affairs of the company as likely to approximate $4 a share on the common."

This is not quite as good as shown in the first annual report when $4.85 was earned on the common for less than a full twelve month period. Officials are said to be satisfied with the results, given the economic conditions of the past year.

Note: Soy is not mentioned.

306. Meharry, Chas. L. 1930. Seeing soybeans on Illinois farms: Stop No. 3–A.P. Meharry Farm [American Soybean Assoc. annual meeting]. *Proceedings of the American Soybean Assoc.* 3:103-08. Eleventh annual field meeting. Held 10-12 Sept. 1930 in Illinois.
• ***Summary:*** Sept. 11, 1930. Thursday morning, 12:30–2:00. This farm is located one mile south and two miles east of

Tolono. Lunch was prepared by the Ladies' Aid of the Tolono M.E. [Methodist Episcopal] church. The tour shows large scale production of soybeans, illustrating farm practices and inoculation studies.

After lunch, at 2:00, the author begins: "Fellow soybean enthusiasts: This is the third time that our farms have had the privilege and pleasure of welcoming the American Soybean Association. I believe that considering its youth and small numerical strength, the Association has accomplished more than any other farm organization." He then lists the places where the American Soybean Association has held its annual meetings from 1920 to 1930. "If any of you can mention another field crop, the growers of which maintain an international association which has held a big field meeting like this each year for eleven consecutive years in nine different states, the District of Columbia, and one Canadian Province, you will prove yourselves better informed than I am."

"Soys at first were used merely as a clover substitute." Address: Meharry Farms near Tolono, Illinois.

307. Canadian Press (CP). 1930. Ontario Woman wins field bean laurels: Mary Maycock, [of] Milford, gets championship–Canadians in front at Chicago. *Toronto Daily Star (Canada).* Dec. 1. p. 38.

• ***Summary:*** Chicago, Dec. 1. "In soy beans, where competition is regional and by types, Robert W. Knister of Northwood, Ont. [Ontario], was second to Gust Guskalson of Columbus, Wisconsin, for the lake region in the greenish yellow type. M.A. Heckendorn of Breslau, Ont. was seventh in the same competition and J.R. Watson and Son of Guelph, Ont., eighth.

"In the same region, competition for other varieties was won by Hugh Jeffrey of Whitby, Ont., with James H. Cookson and Son of Whitby, second, and Campbell Bros. of Whitby, third. Jeffrey's sample was one of the two best of the show, taking the reserve championship."

308. Dimmock, F. 1930-1936 inclusive. Soybeans. *Division of Forage Plants [Dominion Experimental Farms], Annual Reports* *

• ***Summary:*** These "Annual Reports of the Division of Forage Plants" were not published. Address: Div. of Forage Plants, Dominion Experimental Farms, Canada.

309. *Alumni News (Ontario Agricultural College Alumni Association).*1930? Let's have one for old C.A. [Charles A. Zavitz]. p. 29-30.

• ***Summary:*** Contains a good biography of C.A. Zavitz and his many contributions. Also discusses Zavitz Hall (currently occupied by the Department of Fine Art) and Peter Clark Hall. Photos show: (1) A portrait of Charles A. Zavitz. (2) The five young men in the first graduating class in the Department of Agriculture.

Note: Talk with James Zavitz, the grandson of C.A. Zavitz. 2001. Dec. 6. He has a large copy of photo #2 hanging on his living room wall.

310. Chinaton Echo: New Canadian domestic soybean variety. 1931.

• ***Summary:*** Sources: Shutt, Frank T. 1931. "Soybeans: Influence of heredity and environment on the protein and oil contents of soybeans, as grown at Harrow and Ottawa, crops of 1928-29." *Canadian Department of Agriculture, Division of Chemistry, Report of the Dominion Chemist.* p. 54-57. For the year ending March 31, 1930. See p. 55. Discusses the influence of heredity and environment on the content of protein and oil in about 18 varieties of soybeans grown at Harrow and Ottawa in 1928 and 1929. Two tables (p. 55) list the varieties grown at Harrow these two years: One of these varieties is "Chin Echo." Note: We cannot be sure that this "Chin Echo" is the same as "Chinaton Echo," especially since the variety name is not mentioned again until 1946.

Elliott, H.G. 1946. "The soybean. Its possibilities in W.A." [Western Australia]. *J. of Agriculture, Western Australia* 23(4):285-93. Dec. A table (p. 293) lists 18 soybean varieties obtained from Canada and tested in Western Australia. One of these, "Chinaton Echo," took an average length of time to mature (117 days) but gave a fairly low yield (17.64 bu/acre).

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 2. "Chinaton Echo–Harrow, Canada."

311. Golden: New Canadian domestic soybean variety. 1931.

• ***Summary:*** Sources: Shutt, Frank T. 1931. "Soybeans: Influence of heredity and environment on the protein and oil contents of soybeans, as grown at Harrow and Ottawa, crops of 1928-29." *Canadian Department of Agriculture, Division of Chemistry, Report of the Dominion Chemist.* p. 54-57. For the year ending March 31, 1930. See p. 55. Discusses the influence of heredity and environment on the content of protein and oil in about 18 varieties of soybeans grown at Harrow and Ottawa in 1928 and 1929. Two tables (p. 55) list the varieties grown at Harrow these two years: One of these varieties is Golden.

Elliott, H.G. 1946. "The soybean. Its possibilities in W.A." [Western Australia]. *J. of Agriculture, Western Australia* 23(4):285-93. Dec. A table (p. 293) lists 18 soybean varieties obtained from Canada and tested in Western Australia. One of these, Golden, took a long time to mature (125 days) but gave a good yield (35.48 bu/acre).

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 3. "Golden–Canada Experiment Station, Harrow" [Ontario].

312. Shutt, Frank T. 1931. Soybeans: Influence of heredity and environment on the protein and oil contents of soybeans, as grown at Harrow and Ottawa, crops of 1928-29. *Canadian Department of Agriculture, Division of Chemistry, Report of the Dominion Chemist.* p. 54-57. For the year ending March 31, 1930. (Chem. Abst. 25:5587).
• ***Summary:*** Discusses the influence of heredity and environment on the content of protein and oil in about 18 varieties of soybeans grown at Harrow and Ottawa in 1928 and 1929. Two tables (p. 55) list the varieties grown at Harrow these two years: Ste. Annes, 92 (Ste. Anne's No. 92), Early Brown, Mandarin, Yellow 210, Yellow 17, Chin Echo [Chinaton Echo], Italian, O.A.C. 211, O.A.C. 81, Summerland, Black China, E. Korean [Early Korean], Green, Manchu, Black Eyebrow, Ito San, Golden, A.K. For each variety is given: Weight of 100 beans, moisture (%), protein and oil content (%, as received, and water-free).

This research "was undertaken in response to inquiries from several firms interested in the manufacture of soybean oil and soybean meal on a commercial scale. It was desirable to ascertain, if possible, which varieties of soybean were richest in oil and also those with the highest protein content–the percentage of protein largely determining the value of soybean meal." On a moisture-free basis, the Summerland variety contained the highest percentage of protein both years (46/05% and 49.27%), while A.K. contained the most oil (20.18% and 18.79%).

Note 1. Harrow is an agricultural experiment station at Harrow, Ontario, Canada, at the very southernmost tip of Ontario province, south of Windsor and west of Leamington. Windsor, located on the Detroit River, opposite Detroit, Michigan, in southern Ontario, is the county seat of Essex County, and later the site of a major soybean crushing mill.

Note 2. The Summerland soybean variety was developed at the Summerland experimental station in south central British Columbia.

Note 3. This is the earliest document seen (Oct. 2004) that mentions the soybean varieties Black China or Black (China), or Chin Echo [Chinaton Echo], or E. Korean [Early Korean]. Address: Dominion Chemist, Ottawa, Ontario.

313. Summerland: New Canadian domestic soybean variety. 1931.
• ***Summary:*** Sources: Shutt, Frank T. 1931. "Soybeans: Influence of heredity and environment on the protein and oil contents of soybeans, as grown at Harrow and Ottawa, crops of 1928-29." *Canadian Department of Agriculture, Division of Chemistry, Report of the Dominion Chemist.* p. 54-57. For the year ending March 31, 1930. See p. 55. Discusses the influence of heredity and environment on the content of protein and oil in about 18 varieties of soybeans grown at Harrow and Ottawa in 1928 and 1929. Two tables (p. 55) list the varieties grown at Harrow these two years: One of these, Summerland, contained the highest percentage of protein for both years, and very low levels of oil. Note: Summerland was developed at the Summerland experimental station in south central British Columbia.

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 8. "Summerland–Canadian Station Selection."

314. Kinney, C. 1931. The omnipotent bean. *Canadian Geographical Journal* 3(1):46-56. July.
• ***Summary:*** This is an excellent study, with many original photographs, of soya beans and soy products in Manchuria. The author, an American journalist, has been associated for some years with the South Manchuria Railway, and has made a study of economic conditions in Manchuria.

Manchuria, a huge region of about 382,000 square miles, includes 3 of China's wealthiest provinces: Mukden (Fengtien), Kirin, and Amur (Heilungkiang). Sometimes known as the "North-Eastern Provinces of China," Manchuria is ruled by Chang Hsueh-liang, popularly known as the "Young Marshal." He is progressive and wants to see the 3 provinces developed.

The original soya bean "producing centres are said to be Cochin China and Java. The beans were first grown in China Proper about 4,000 years ago and were used locally to feed the natives and animals. To-day the chief zones are Manchuria, China, Japan and Korea, but the amount of soya beans produced in Manchuria alone is much greater than the product of the three other countries combined."

After the Russo-Japanese was (1904-05), victorious Japan, through the Portsmouth Treaty, became the lessee of the Kwantung Leased Territory (1,337 square miles), the southernmost point of Manchuria. It contained the greater part of the southern branch of the Chinese Eastern Railway, which is now known as the South Manchuria Railway. Note: The key ports of Dairen (Dalian) and Port Arthur (Lüshun) are in this Leased Territory.

In about 1905 the last remnants of the Chinese ban on immigration of Chinese into Manchuria were removed. Few came, however, until the early 1920s, "when warfare broke out on a large scale in China proper, and hundreds of thousands of Chinese fled from the famine, war-stricken and bandit infested areas of that country into the peaceful and

undeveloped, yet fertile provinces of the Manchus." Today it is said that about 70% of Manchuria's population are working directly or indirectly on cultivation of soya beans. "There is no doubt in the minds of all that were it not for the soya bean, Manchuria would be an insignificant country."

The origin of soya bean cultivation in Manchuria is unclear, although most agricultural experts believe the soya beans were brought from districts of Central China. The question as to why they thrive in Manchuria, while in other parts of the world with similar climatic conditions, they fail to give good results, has never been fully answered.

European and U.S. buyers of Manchurian soya beans have long complained that they are not properly cleaned or graded. Soil, poor quality beans, and even large stones have been found mixed with Grade One beans. This problem must be fixed quickly if Manchurian dealers expect to continue to sell their beans to Occidental countries. In 1930 an association was formed, with inspectors placed at major centers to see that soya beans are graded correctly.

Genetic improvement of Manchurian soya beans began shortly after 1905 when the Japanese established the Agricultural and Experimental Station at Kungchuling. Soon Japanese scientists developed a larger soya bean with a much higher oil content. It was widely planted by farmers and prices rose accordingly. The Russians, followed by the Chinese, have founded several soya bean and agricultural stations, where material and advice can be obtained by local farmers. The Central Laboratory of the South Manchuria Railway Co. at Dairen is a leading scientific institution for studying soya beans; it has discovered many new uses for the beans, and developed a process for extracting the oil using alcohol as a solvent. The uses of the soya bean, its oil ("bean oil") and its cake ("bean cake") are discussed, as is its composition.

In Manchuria today there are 465 soya bean mills for extracting the oil and making bean cakes. They are located as follows: In Dairen 59, Yingkou 22, Antung 21, and Harbin 46. Along the South Manchuria Railway Line 252. Along the Chinese Eastern Railway Line 28. Along the Ssupingkai- Taonan- Anganchi Line 37.

"The latest statistics gathered by the South Manchuria Railway Co. for the year 1929 show that:–10,065,370 acres of land in Manchuria were planted to soya beans; 5,320,555 tons of soya bean were produced... 3,087,320 tons of soya beans, 133,854 tons of soya bean oil, and 1,568,552 tons of soya bean cakes were exported during 1929."

As "soon as the business depression that is sweeping the entire world is over," soya beans are expected by experts to be in great demand in Europe and America.

The captions to the various photos read as follows: "(1) An aerial view of the Port of Dairen, showing many ships at anchor awaiting their turn for berth space. The city of Dairen is in the background. (2) Soya beans in [osier] bins [12-15 feet high and cylindrical in form] at Kaiyuang, one of the produce centers of Manchuria. Many native carts carrying bags of soya beans are shown among the bins. (3) Bags of soya beans are brought on carts from the interior to the railway stations or marketing places. Due to bandits, Chinese guards are hired [one is shown standing on the cart with a rifle] to protect the beans from being stolen. (4) Coolies carrying bean cakes [that look like cartwheels about 2 feet in diameter and 3 inches thick, in high stacks] from the South Manchuria Railway Company warehouse to the freight steamers. (5) Open storage for soya beans near Dairen wharves [in shapes like houses, each covered with a tarpaulin]. During the busy season, beans are brought down from the interior in large quantities, and are placed in the open storage to await shipment. (6) Interior of a soya bean mill. Presses, or oil compressors, crush the beans, which have first been heated, and oil is extracted. The crude oil is pumped into a large vat where the impurities are removed. [The resulting cakes look like cartwheels] (7) Dumping soya beans into [osier] mat bins, North Manchuria. (8) Due to civil warfare, bandits, high taxation and famine, hundreds of thousands of Chinese immigrants have migrated to peaceful Manchuria. Most of the newcomers are farmers and the majority of them cultivate soya beans. (9) A section of the Kungchuling Agricultural Experimental Station, the largest in Manchuria. For years this organization has experimented on the bean and has succeeded in giving the world a larger and better oil producing bean. This station was established and is still financed by the South Manchuria Railway Company, for the betterment of agricultural products in Manchuria. (10) Primitive method of sorting soya beans [they are flailed on mats in a courtyard]. (11) Oil tanks [and barrels] where soya bean oil is placed prior to shipment. Over 133,000 tons of oil are manufactured annually by the various bean oil mills in Manchuria. (12) Hoisting bags of soya beans from Dairen wharves into the holds of the ships. (13) Soya beans in open storage, awaiting shipment at Ssupingkai station, one of the produce centres in Manchuria. (14) Modern railway tank cars bring bean oil to the wharves where it is deposited into large sea-going oil tankers. (15) Unloading soya beans [from railroad flatcars] at Dairen wharves. The bags of beans are brought from the interior of Manchuria to Dairen, the largest port in Manchuria, the beans are then transported by steamers to various parts of the world." Address: American journalist.

315. Eldred, Myrtle Meyer. 1931. Your baby and mine: Health and habit problems. *Toronto Daily Star (Canada).* Sept. 30. p. 25.

• ***Summary:*** A small percentage of babies are sensitive to cow's milk. "Soybean milk, obtainable in commercial form from your druggist, is a preparation designed for babies who develop eczema from cows' milk. This is a nourishing form of protein, and may have no bad effect on baby."

316. Cartter, J.L. 1931. Effect of latitude on growth and composition of the soybean. *J. of the American Society of Agronomy* 23(12):1066. Dec. Presented as part of Symposium on Soybeans. Leader: W.J. Morse.
• ***Summary:*** "With the rapid growth of the soybean industry in the United States has come the need of better varieties in each region where soybeans are grown. The Department of Agriculture recently introduced several thousand soybean varieties and selections from the Orient...

"Three varieties differing in their date of maturity have been grown cooperatively at experiment stations ranging in latitude from Florida to Canada. Data are presented showing the effect of change in latitude on the growth and on the oil and protein content of these varieties. The seasonal change in number of hours of daylight in different latitudes is charted and the relation of the daylight duration to date of blooming and date of ripening of soybeans is brought out. The effect of time of planting on the date of blooming is also discussed." Address: USDA.

317. **Product Name:** Soyex Malt-Cocoa Drink, and Soyex.
**Manufacturer's Name:** Soyex Co.
**Manufacturer's Address:** Nutley, New Jersey.
**Date of Introduction:** 1931. December.
**New Product–Documentation:** W.L. Burlison and O.L. Whalin. 1932. *Journal of the American Society of Agronomy* Aug. p. 594-609. "The production and utilization of soybeans and soybean products in the United States." See p. 608. "Soyex-Malt-Cocoa drink" and "Soyex" are listed as two Canadian soybean food products.

W.L. Burlison. 1936. *Industrial and Engineering Chemistry* 28(7):772-77. July. "The Soybean: A Plant Immigrant Makes Good." See Table II, p. 775. States that these products were on the market during the latter part of 1931. Note: This is the earliest commercial malted soymilk product seen.

318. Photographs of the Amano Brothers / T. Amano Co. soy sauce factory in Vancouver, British Columbia, Canada. 1931-1937. Vancouver, British Columbia, Canada.
• ***Summary:*** These four black-and-white photos were sent to Soyfoods Center in 1981 by T. Amano Co. of British Columbia. (1) Ca. 1928-31 showing the end and roof of a building with a sign that reads "Amano Brothers. Shoyu Bean Sauce." A street is in the foreground. (2) A sign about 12 feet long in the lower window of a building, ca. 1935. The three lines read: "T. Amano Co. Manufacturer of soya bean sauce. Bean & rice products." (3) The inside of the shoyu plant in 1937 showing many wooden vats and koji trays. A board walkway along the side of three tanks is used by the person stirring the moromi. A wooden ladder leans against a fourth vat. No people are present. (4) Five Japanese men working in the shoyu plant. Three are standing on top of or near the top of the vats, apparently stirring the moromi. A fourth, wearing suspenders, is standing on the floor. Address: Vancouver, British Columbia, Canada.

319. Dike, Theodore Williams. Assignor to I.F. Laucks, Inc. (Seattle, Washington). 1932. Gluing materials together. *U.S. Patent* 1,851,950. March 29. 4 p. Application filed 26 May 1930.
• ***Summary:*** Soybean meal protein may be used as base material. Address: New Westminster, British Columbia, Canada.

320. Dike, Theodore Williams. Assignor to I.F. Laucks, Inc. (Seattle, Washington). 1932. Gluing process. *U.S. Patent* 1,851,951. March 29. 4 p. Application filed 26 May 1930.
• ***Summary:*** The author has invented a process that makes use of a "penetration checking agent" which in turn makes possible the application of a highly dispersible adhesive without the typical difficulties of the wet adhesive penetrating into the glued wooden surface (often plywood) and lack of uniformity.

The "invention contemplates the provision of non-dispersible adhesive base material [e.g. a powder], as for instance casein, gluten, or other non-dispersed protein, such as the segregated or isolated protein from oil seed flours such as soya bean [isolated soy protein], hemp seed, castor, etc., or seed flours, particularly flour from the residue of oleaginous seeds from which the oil has been removed. Examples of this are flour or meal made from cake or residue of soya bean, cottonseed..." Heat and pressure are applied during the gluing process. Address: New Westminster, British Columbia, Canada.

321. Dike, Theodore Williams. Assignor to I.F. Laucks, Inc. (Seattle, Washington). 1932. Process of gluing. *U.S. Patent* 1,851,952. March 29. 4 p. Application filed 28 May 1930.
• ***Summary:*** The author has invented powdered adhesive bases and means for using them, since a variety of difficulties attend the use of liquid glues, as in making plywoods. Not only must the water in the glue be eliminated, but it can also cause the wood to swell, warp, check, and sometimes stain. "As adhesive base material, I may employ the segregated proteins, such as casein, gluten, segregated or isolated protein from oil seed flours such as soya bean, hempseed, castor, etc., or I may employ a vegetable proteinous material in the form of a ground seed flour, for instance the residue of oleaginous seeds from which the oil has been removed being particularly advantageous. Examples of this are flour or meal made from cake or residue from soya bean, peanuts..." Pressure is applied during the gluing process. Address: New Westminster, British Columbia, Canada.

322. Dike, Theodore Williams. Assignor to I.F. Laucks, Inc. (Seattle, Washington). 1932. Art of gluing. *U.S. Patent* 1,851,953. March 29. 4 p. Application filed 28 May 1930.
• ***Summary:*** The author has invented powdered adhesive bases and means for using them, since a variety of difficulties attend the use of liquid glues together with alkaline dispersing agents, as in making plywoods. "As adhesive base material, I may employ segregated proteins, such as gluten, segregated or isolated protein from oil seed flours such as soya bean, hempseed, castor, etc., or I may employ a vegetable proteinous material in the form of a ground seed flour, for instance the residue of oleaginous seeds from which the oil has been removed being particularly advantageous. Examples of this are flour or meal made from cake or residue from soya bean, peanuts..." Heat and pressure are applied during the gluing process. Address: New Westminster, British Columbia, Canada.

323. Dike, Theodore Williams. Assignor to I.F. Laucks, Inc. (Seattle, Washington). 1932. Process of gluing. *U.S. Patent* 1,851,954. March 29. 3 p. Application filed 29 Sept. 1931. Application also filed in Canada on 3 March 1930.
• ***Summary:*** The author has invented powdered adhesive bases and means for using them, since a variety of difficulties attend the use of "liquid glues." Among the adhesive materials which may be utilized in these adhesives, either singly or in combination, are "casein, gluten, segregated or isolated protein from oil seeds such as soya bean,... flour or meal from the residue of oleaginous seeds, such as soya bean," etc. Pressure, but no heat, is typically applied during gluing. Address: New Westminster, British Columbia, Canada.

324. Dike, Theodore Williams. Assignor to I.F. Laucks, Inc. (Seattle, Washington). 1932. Art of gluing. *U.S. Patent* 1,851,955. March 29. 6 p. Application filed 29 Sept. 1931.
• ***Summary:*** Plywood glue can be made from soya-bean flour (or casein) mixed with a solution of caustic soda or caustic potash.

Note: According to the *Oxford English Dictionary,* the term "ply wood" was first used in April 1907 in the *Timber Trades Journal.* The single term "plywood" was first used in 1922. Address: New Westminster, BC, Canada.

325. Laucks, Irving F.; Cone, Charles N.; Dike, Theodore W. Assignors to I.F. Laucks, Inc. (Seattle, Washington). 1932. Method of hot gluing. *U.S. Patent* 1,851,709. March 29. 6 p. Application filed 25 April 1930. 10 drawings. [10 ref]
• ***Summary:*** Improved method for using materials settable by heat (such as soya bean flours) to join pieces of wood. Address: 1-2. Seattle, Washington; 3. New Westminster, British Columbia, Canada.

326. Cutler, G.H. 1932. Germination tests in soybeans. *Purdue Agriculturist (Indiana)* 26(6):82, 96. March.
• ***Summary:*** Contents: Introduction (some 40 strains of Manchu variety soybeans were tested). Season an influential factor. Strains differ in germinability. Hard seeds and germination. Laboratory and field germination: Results differ. Soil influenced germination. Growth period, per cent germination and yield.

A sidebar titled "Twenty-five year with soybeans" contains a brief biography of Dr. Cutler, who started plant breeding and crop production experiments at Macdonald College in [Quebec] Canada as an undergraduate 25 years ago. In 1909 he received his bachelor's degree from the University of Ontario, Guelph, Canada. His master's and doctor's degrees were awarded by the University of Wisconsin in 1926 and 1928 respectively. "In September, 1926, he became connected with the agronomy department at Purdue, taking charge of the plant breeding. The greater part of his time is devoted to the breeding of wheat and soybeans..."

A photo shows a farmer seated on a "cultipacker" pulled by two horses. It "breaks the surface crust and aids the germinating beans in pushing their sprouts through the soil." Address: Agronomy Dep.

327. Squirrell, W.J.; Laughland, J. 1932. Soybeans in Ontario. *Ontario Department of Agriculture, Bulletin* No. 366. 16 p. April.
• ***Summary:*** Contents: Origin and importance. Description. Composition. Climatic adaptation. Rotation. Soil and soil preparation. Manures and fertilizers. Varieties. Seed selection. Inoculation. Harvesting. Threshing. Uses of the crop: Hay, as a soiling crop, ensilage, pasture, soil improvement, ripe seed, straw, soybean oil, meal, other products. What farmers think of soybeans (Extracts from reports by 21 men who have grown and fed the crop from the following places (mostly counties): Durham, Dundas, Brant, Elgin, Frontenac, Grenville, Halton, Hastings, Kent, Lambton, Middlesex, Oxford, Perth, Simcoe, Welland, Wellington).

"Soybeans were first tested in the experimental plots at the Ontario Agricultural College in 1893 and first distributed for co-operative tests from the College to farmers in 1901."

"More than one hundred varieties of soybean have been tested for fodder and grain production by the Field Husbandry Department of the Ontario Agricultural College. Some of these varieties matured sufficiently early to be successfully grown in Ontario. Many, however, are too late for the climatic conditions of the Province and do not even reach the best fodder conditions before the arrival of killing frost."

Two tables (p. 6-7) show the average results for 6 years in testing 21 varieties of soybeans for fodder and for grain

by the Department of Field Husbandry at the Ontario Agricultural College. In each table the varieties are sorted by descending yield of green fodder or grain [seed]. The varieties are: O.A.C. No. 211, Habaro No. 20405 (Wash. [Washington, DC]), Ito San Soja, Black Eyebrow (Jeffrey), North's, Minnesota No. 167 (Minnesota Exp. Station), Manchu, Early Yellow (O.A.C. No. 111), Elton, Medium Green (O.A.C.), Mandarin, Chestnut, Tsurunoko, Oyaji, Shiro Kotsubu, Early Yellow, Black Ontario, Quebec No. 92, Black Manchurian (Jeffrey), Brown, Ogema. For fodder, the "O.A.C. No. 211, which stands first with an average yield of 10.16 tons of green fodder per acre for the 6-year period, is a plant selected strain, developed by the Ontario Agricultural College, from the Habaro variety and is the only variety of soybeans eligible for registration in Canada." The plants were cut on Sept. 7. For grain/seed production Black Ontario has the highest average yield over the 6 years at 28.47 bushels/acre, followed by North's (28.42), O.A.C. No. 211 (27.73), and Black Manchurian (Jeffrey; 27.12). The plants were cut for harvest between Sept. 23 and Oct. 9. The Black Ontario was received from a grower in the Manitoulin Island in 1924. It produces small, black grain and straw of medium length. "The O.A.C. No. 211 has proven to be the best general purpose soybean tested at the College."

Soybean oil "is used in the manufacture of soaps, paints, rubber substitutes, printers ink and other articles. It is also used as a salad oil and as a substitute for butter and lard."

"In China and Japan soybeans are used in many ways as human food. The green pods, dried seed cakes, soy sauce and soybean milk, all have their place. In America soybean flour is made into cakes, biscuits, muffins, and being low in starch it has a special place as a diabetic food."

The article contains 11 photos, including one of 2 horses pulling a rotary hoe, and fields of soybeans growing in Peel, Welland, Dundas, Kent, Middlesex, and Lincoln counties. Address: Dep. of Field Husbandry, Ontario Agricultural College, Guelph.

328. *Chatham Daily News (Ontario, Canada).*1932. Soya bean cooperative gets charter: Form of contract is to be submitted to the growers at once. Matters pertaining to organization of farmers cooperative discussed at meeting of special committee of Board of Trade. May 28. p. 3, 12.
• ***Summary:*** "A charter has been granted to 'The Soya Bean Oil and Meal Co-operative Company of Canada Limited,' and will be in the city in the course of a few days, according to an announcement made by Douglas G. Kerr at a meeting yesterday of the special committee of the Chatham Board of Trade empowered to attend to the details of organization of the farmers co-operative which will operate a crushing plant in the city.

"Another interesting announcement was that more than 6,000 acres have been pledged for soya bean cultivation so far, with promises for more, and that everything augurs well for the operating of a temporary crushing plant in the T.H. Taylor Mills in the fall.

D.E.R. Rispin, chairman of the special committee, presided at the meeting which was held in the agricultural offices. Those in attendance were Douglas G. Kerr, T.R. Jones, Ross Huff, Stewart Campbell, Mayor I.L. Davis, Alderman P.J. Chinnick, and city manager A.L. Thompson."

Restrictions:... Mr. Kerr explained that the co-operative is permitted to issue 2,000 shares at $50 each. The restrictions are that only one share be held by one person, and that shares may only be issued to those actively engaged in farming in Canada. Shares can be transferred only with the consent of the directors.

"The constitution calls for 18 directors. Twelve provisional directors have been named for the purpose of organization, and the permanent directors will be appointed at an early meeting of the shareholders. As soon as the bylaws already drafted are approved, the meeting will be called."

"Management contract: Some discussion was given to the question of a contract with the co-operative management, which will be the Archer-Daniels Midland Company, the opinion being held that details in connection with this could be completed at a meeting to be held next week."

Full details of the eight-point contract are given. First, the Grower agrees to plant, care for, and cultivate a specified number of acres of Soybeans during a specified season at a specified location.

"2. The Co-operative hereby agrees to purchase and the Grower hereby agrees to sell all Soybeans the Grower produces less such quantity to be reserved for seed requirements for the following season as agreed to by the Co-operative, subject to terms and conditions as herein set forth, at a price per bushel (60 lbs.) to be finally determined when the Soybean products have been manufactured and sold.

"3. The Grower agrees to deliver Soybeans when delivery is called for by the Co-operative to the Co-operative crushing plant at Chatham...

"4. The Co-operative will make an advance to the Grower on the price per bushel of Soybeans..."

Note 1. This is the earliest document seen concerning soybeans (or this cooperative crushing company) in Chatham, Ontario, Canada.

Note 2. This is the earliest published document seen (Jan. 2010) concerning a soybean crusher in Canada.

329. Robertson, D.W.; Kezer, A.; Deming, G.W. 1932. Soybeans under irrigation in Colorado. *Colorado Agric. Exp. Station, Bulletin* No. 392. 24 p. July. [4 ref]

• ***Summary:*** Contents: Introduction. Historical. Climatic requirements. Soybeans under irrigation. Preparation of seedbed. Method of seeding. Rate of seeding. Date of seeding. Irrigation. Inoculation of seed. Stage to harvest soybeans. Harvesting methods. Experimental results at Fort Collins (variety tests 1923-1926).

Historical: "In Colorado, soybeans were not extensively grown until about 1923 and for several years after that date. Due to the fact that other crops furnished protein feeds, their use on irrigated land has not increased.

"From tests conducted at Fort Collins, Colorado, it was found that good yields of soybeans could be obtained under irrigation. The following varieties gave the highest yields: Yellow-seeded varieties–Minsoy, Wea, Saskatoon. Dark-seeded varieties–Soysota and Black Eyebrow. The highest-yielding variety was Soysota, a brown-seeded bean. The best date to plant soybeans proved to be late April or early May. Twenty-inch rows gave the highest yield of grain per acre."

Table 1 (p. 8-9) shows: The following varieties were tested for yield in Colorado, most during the 4 years from 1923 to 1926. Yellow seeded (in descending order of yield): Wea, Minsoy, Saskatoon, Manchu, Pinpu, Elton Sel., A.K., Ito San, Mandarin, Elton, Habaro, Early Yellow, Dunfield, Midwest, Aksarben. Dark-seeded varieties: Soysota, Black Eyebrow, Early Brown, Chestnut, Wisconsin Black. Wea (F.C. No. 1017) gave the best average yields of any yellow-seeded variety grown at Fort Collins from 1923-1926. The average yield of Wea during this period was 25.3 bushels/acre. Range: 23.2 to 28.2.

330. Dike, Theodore Williams. Assignor to I.F. Laucks, Inc. (Seattle, Washington). 1932. Method and apparatus for the formation of plywood and the like. *U.S. Patent* 1,870,041. Aug. 2. 19 p. Application filed 21 May 1931. 11 drawings.
• ***Summary:*** Uses a mixture of soya bean flour (from which the oil has been expressed) and dry blood. Address: New Westminster, British Columbia, Canada.

331. Sharpe and Milne Co. 1932. Canadian Soyabean Products Limited.

Bidwell Vegetable Oil Mills Limited. *Toronto Daily Star (Canada)*. Aug. 19. p. 13.
• ***Summary:*** "All persons having claims against the above-mentioned companies, please file name with undersigned on or before Friday, the 20th day of August, 1932. (Signed)

"Sharpe and Milne Co., Chartered Accountants,

"814, Excelsior Life Building, Toronto."

332. Burlison, W.L.; Whalin, O.L. 1932. The production and utilization of soybeans and soybean products in the United States. *J. of the American Society of Agronomy* 24(8):594-609. Aug.

• ***Summary:*** Contents: Introduction. Acreage. Yield per acre. Acreage harvested for beans. Acreage harvested for hay. Acreage harvested with livestock. Imports of certain soybean products. Production of important oils in the United States. Net imports of oils and fats into the United States. Import duties levied on soybeans and soybean products. Utilization of soybeans in United States. Soybean products. Summary.

"Soybean acreage harvested for beans has expanded rapidly in the United States since 1925, reaching an estimated production of approximately 18,000,000 bushels for 1931. More than half of the acreage grown each year has been cut for hay. The acreage harvested with livestock has not shown any increase since 1927.

"Imports of soybeans and soybean cake and meal have always been of minor importance. Soybean oil imports represented significant quantities at the close of the World War, however, but have since diminished to negligible amounts as import duties have become effective. The imports of such competing oils as cocoanut and linseed have been of greatest importance.

"Approximately one-fourth of the soybean oil being utilized in the United States is going into paints and varnishes, another one-fourth is finding its way to the soap kettle, nearly one-fifth is being used in edible products, and about one-eighth is being consumed in linoleum and water-proofing products. The number of commercial products being placed on the market that contain soybeans or soybean products is increasing rapidly. A most encouraging feature of soybean progress has been the research development in utilization of soybeans and soybean products within the last two years and the corresponding expansion in demand along commercial lines." Contains numerous statistical tables illustrating these facts. Tables show: (1) Production of soybeans harvested for beans, selected states and the United States, 1924-31, 1,000 bushels. (2) Total equivalent solid acreage of soybeans, selected states and the United States, 1922-30, 1,000 acres. (3) Yield in bushels per acre. (4) Acreage of soybeans harvested for beans, selected states and the United States, 1922-31, 1,000 acres. (5) Acreage of soybeans harvested for hay, selected states and the United States, 1922-30, 1,000 acres. (6) Acreage of soybeans harvested with livestock, selected states and the United States, 192230, 1,000 acres. (7) Imports into United States of soybean oil, soybean meal and cake, and soybeans, 1915-31. (8) Domestic production of soybean oil and other oils and fats from domestic materials, 1916-30, 1,000 pounds. (9) Net imports of animal and vegetable oils and fats, with special reference to soybean oil and five other kinds of vegetable oils, oil equivalent being used for imported materials, United States, 1916-30, 1,000 pounds. (10) Exports of soybean oil and other leading vegetable oils, United States, 1919-31, 1,000 pounds. (11) Duties levied on soybean oil, soybean cake

and meal, and soybeans by the tariffs of 1909, 1913, 1921, 1922, and 1930. (12) How the 1929 and 1930 crops of soybeans were utilized in the United States. (13) Utilization of soybeans and soybean products in the United States, 1930 crop. (14) List of soybean products produced in the United States.

Table 13 (p. 607) "Utilization of soybeans and soybean products in the United States, 1930 crop." The 13,323,000 bushels of soybeans were used as follows: Crushed 4,800,000 bu, seed 4,623,000, feed 3,500,000, ground 400,000 (half used for feed and half for food). The 37,200,000 lb of soybean oil was used as follows: Edible: Oleomargarine 750,000 lb, lard substitutes [shortening] 500,000, other food products 4,750,000. Industrial uses: Paint and varnish 9,000,000 lb, soap kettle 8,500,000, linoleum and oil cloth 4,000,000, other 3,500,000. Increased stocks including oil equivalent 5,700,000. The 110,000 tons of soybean meal was used as follows: Commercial feeds 89,100 tons, other feed 20,000, edible soy flour 850, diabetic foods 50. The 100,000 tons of soybean meal was very small compared to its competing products: Cotton seed meal 2,350,000 tons, and linseed oil meal 1,750,000.

Table 14 (p. 608) "List of soybean products produced in the United States." The accompanying text states that this list "does not pretend to be complete. Attention is called to the large number of food products actually being placed on the market in the United States from soybeans at the present time. This list has grown rapidly during this last year." The extensive list includes commercial food, feed, and industrial products derived from soybeans. Some products have brand names and others only generic names.

"Food products–USA: Soybean flour. Soybean meal flour. Refined edible soybean oil. Soybean salad oil. Chocolate bars (30% soybean flour). Cocoa (up to 60% soybean flour). Sausages (up to 50% soybean flour). Bread (7½% soybean flour). Rolls (10% soybean flour). Macaroni (20% soybean flour). Soybean muffins. Soybean cookies. Soybean doughnuts. Vegetable shortening. Infant foods. Diabetic foods. Oleomargarine. Lard substitutes. Filled sweets. Soybean sprouts. Soybean cheese. Soybean milk. Soybean buns. Soybean ice cream [perhaps that served in Sept. 1930 in Illinois at the American Soybean Association's annual meeting]. Soya cream biscuits. La Choy-soy sauce. Soyolk (flour). Soy biscuits. Soy flour. Vi-Zoy. Lektizoy. Zoy soup. Zoybeans (cooked beans). Bacon and Zoy beans. Zoy bouillon. Soy bean biscuit. Casein gluten flour. Non-fat mayonnaise. Fatless spread. Fluffo.

Canadian food products: Milqo (soy milk). Vi-Tone (chocolate). Soya flour. Soyex-Malt-Cocoa drink. Soyex. Macaroni

"Feed products: Cake or meal. Commercial feed. Dairy feed. Hog chow. Poultry chow. Dog chow. Chicken chowder. Steer fatena. Calf chow. Lay chow. Rabbit chow. 34% protein chow chow. 24% protein chow chow. Chick startena. Chicken fatena. Olelene. Grainola.

"Industrial uses: Paint. Varnish. Enamels. Oil cloth. Linoleum. Printers ink. Glycerine. Celluloid. Lauxtex plastic wall coat. Lauxein waterproof soybean glue. Lauxein emulsifier (all 3 made by I.F. Laucks, Inc., Seattle, Washington). Soap (liquid). Soap (potash). Core binders. Rubber substitutes."

Note 1. This is the earliest document seen that mentions the following commercial soy products: La Choy-soy sauce. Soyex-Malt-Cocoa drink. Zoybeans (cooked beans). Lauxtex plastic wall coat. Lauxein waterproof soybean glue. Lauxein emulsifier. All were on the market by late 1931.

Note 2. This is the earliest English-language document seen (Feb. 2008) that uses the term "vegetable shortening" to refer to shortening made without animal products. Address: Univ. of Illinois, Urbana.

333. Dike, Theodore Williams. Assignor, by mesne assignments, to Laminating Patents Corp. (Seattle, Washington; a corporation of Delaware). 1932. Method of making plywood. *U.S. Patent* 1,883,616. Oct. 18. 10 p. Application filed 29 Jan. 1929. Renewed 10 March 1931.
• ***Summary:*** "The cold press method of gluing using dry veneer is the most commonly used at present." "There is also in use a method of hot pressing using either dry or wet veneer." This patent concerns "the application of the adhesive in discrete-particle form, such, for example, as a dry powder or a suspension of discrete particles in a fluid." Soya bean flour is an example of a non-dispersible material. Address: New Westminster, British Columbia, Canada.

334. Dike, Theodore Williams; Laucks, I.F.; Cone, C.N. Assignors, by mesne assignments, to Laminating Patents Corp. (Seattle, Washington; a corporation of Delaware). 1932. Method of making plywood. *U.S. Patent* 1,883,617. Oct. 18. 5 p. Application filed 1 April 1929.
• ***Summary:*** This patent concerns "the application of the adhesive in discrete-particle form, such, for example, as a dry powder or a suspension of discrete particles in a fluid." "A particular feature of this invention is the control of the size of the particles of the adhesive-base material applied." Soya bean flour is an example of a non-dispersible material. Address: 1. New Westminster, British Columbia, Canada; 2-3. Seattle, Washington.

335. Lothrope, Leon. 1932. Soya beans. Alleged cause of war in Manchuria and soft pork in Ontario, interest in Western Canada now centres around growing them on prairies. Their strong points and weaknesses are recorded herein. *Nor'-West Farmer and Farm & Home (Canada)* 51(18):8-9, 29. Oct.
• ***Summary:*** Discusses the possibilities of the soybean crop in western Canada, the value and importance of soybeans in

various countries, their uses, amount of production in the United States, and the prices which might be expected if soybeans are grown in western Canada.

"There was something over a million pounds of soya bean oil imported into Western Canada last year which is about 35 tank carloads. It is largely used in the manufacture of soaps, shortening and salad oil. Contrary to popular opinion, only very small amounts are utilized in paints and varnishes, due to its slow drying qualities and lack of hardness...

"It is not surprising, then, that when the National Government in Great Britain imposed a ten per cent tariff on soya bean oil, cake and meal imported from foreign countries, and they are without duty from Empire countries, that the industries affected would look around for new sources of supply. Nor is it surprising that Canadian railroad officials and other business interests would evince some enthusiasm in the establishing of a new industry in Canada that has such potentialities as to cause a war in Manchuria and to be directly responsible for placing the Japanese Merchant Marine in third place among the nations. If Canada could 'horn in' on such an industry it should be all to the good.

"This accounts for the visit of a member of the Corn Exchange, of Liverpool, to Canada in recent months whose firm deals in soya beans and soya bean products, and owns large warehouses along the South Manchuria Railway. His visit was for the express purpose of seeing if Canada could supply soya beans for the European trade."

"The Manitoba Agricultural College commenced work with soya beans fifteen years ago [about 1917]. Professor Southworth, who is now in England, developed a strain of Ogema [Ogemaw], known as Manitoba Brown, that consistently ripens seed at the College and in several other parts of the West where they have been grown. The only other strain that has shown much promise in the Prairie Provinces are selections of Wisconsin Black. Some success has been obtained with this latter variety at the Dominion Experimental Farm, Brandon [Manitoba] and by Don Bark of the C.P.R. [Canadian Pacific Railway] Demonstration Farm at Brooks, Alta. [Alberta; Brooks is a town located 100 miles southeast of Calgary]. The three stations mentioned above are the only ones that report at all favorably on this crop and we have had communications from most government institutions in the West... The returns received from the three Dominion Experimental stations in British Columbia are neither more nor less encouraging than from the Prairie Provinces.

"Dr. McRostie of the Manitoba Agricultural College, who was formerly in charge of all the forage crop work for Dominion Experimental Farms system, has probably done as much on the growing of soya beans as anyone, states that 'fifteen bushels to the acre is a reasonably good yield to expect under field conditions in Manitoba with the early varieties so far developed.'"

"A World Crop: The best argument in favor of endeavoring to grow soya beans in Western Canada lies in the fact that it is a world crop and if we can grow it in competition with the world as we do wheat it is worth trying as it will give us greater diversification. The Agricultural Section of the Winnipeg Board of Trade is making arrangements to distribute small amount of soya bean seed to different districts in the Province of Manitoba. They hope to have in 100 acres next year for a trial. Mostly home grown seed of the black and brown types will be used."

A photo shows 5 products that contain soya bean oil or meal, including Vi-Tone Malt Chocolate Flavor, Domestic brand Shortening (purely vegetable), MacDowell's Soy Bean Flour (Brockville, Ontario), Pearl White Naptha [Naphtha] Soap, and Jif Flaked Soap.

Note 1. This is the earliest English-language document seen (March 2000) that uses the word "shortening" to refer to such a product made from soy oil.

Note 2. This is the earliest document seen (Sept. 2004) that mentions the soybean variety Manitoba Brown. Address: Canada.

336. **Product Name:** Soybean Flour (Specially Prepared for Diabetics).
**Manufacturer's Name:** MacDowell Brothers.
**Manufacturer's Address:** P.O. Box 141, Brockville, ONT, Canada. Plant also at Ogdensburg, New York.
**Date of Introduction:** 1932. October.
**Wt/Vol., Packaging, Price:** Paperboard box.
**How Stored:** Shelf stable.
**New Product–Documentation:** Leon Lothrope. 1932. *Nor'-West Farmer and Farm & Home* (Canada). Oct. p. 8. "Soya beans." A photo titled "Products that contain soya bean oil or meal" shows a box of "MacDowell's Soy Bean Flour. Specially prepared for Diabetic and other Carbohydrate Restricted Diets." Made by MacDowell Bros., Brockville, ONT.

U.S. Bureau of Chemistry and Soils. Food Research Div., 1936. Partial list of manufacturers of soybean flour.

L.B. Breedlove. 1936. *Chicago J. of Commerce and La Salle Street Journal*. June 25. p. 14. "Soy bean–The magic plant. Article XI." "MacDowell Bros., Brookville, Ont., Canada: Soy bean flour."

International Inst. of Agriculture. 1936. *Le Soja dans le Monde* [The Soybean in the World]. See: Manufacturers of edible soy products. p. 206. Lists the company as MacDowell Bros. in Brookville [sic, Brockville], Ont. Soy flour.

Soybean Blue Book. 1949. p. 100. Under "Soy flour, flakes and grits." "Brockville, Ontario, Canada–MacDowell Brothers. Plant also at Ogdensburg, New York. Soybean flour specially processed for diabetics."

337. Manitoba Brown: New Canadian domestic soybean variety. 1932. Seed color: Brown.
• ***Summary:*** Sources: Lothrope, Leon. 1932. "Soya beans. Alleged cause of war in Manchuria and soft pork in Ontario, interest in Western Canada now centres around growing them on prairies. Their strong points and weaknesses are recorded herein." *Nor'-West Farmer and Farm & Home* (Canada) 51(18):8-9, 29. Oct. "The Manitoba Agricultural College commenced work with soya beans fifteen years ago [about 1917]. Professor Southworth, who is now in England, developed a strain of Ogema [Ogemaw], known as Manitoba Brown, that consistently ripens seed at the College and in several other parts of the West where they have been grown. The only other strain that has shown much promise in the Prairie Provinces are selections of Wisconsin Black."

Dimmock, F.; Kirk, L.E. 1934. "Soybeans." *Canada Department of Agriculture (Ottawa), Pamphlet* No. 155. 18 p. New Series. See p. 13-17. A table (p. 11) lists seven varieties; for each is given the maturity and colour of the seed. The first of these is: Manitoba Brown, very early, brown. This variety also appears in various tables and in one photo on pages 12-17.

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 5. "Manitoba Brown–Manitoba Station selection."

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 14-15. Manitoba Brown is in the USDA Germplasm Collection. Maturity group: 00. Year named or released: by 1939. Developer or sponsor: Manitoba Agricultural College, Winnipeg, Manitoba, Canada. Literature: 13, 14. Source and other information: Obtained by the Manitoba Agricultural College, Canada, from the USDA about 1922. Prior designation: PI number lost. Address: Manitoba, Canada.

338. Stewart, C.L.; Burlison, W.L.; Norton, L.J.; Whalin, O.L. 1932. Supply and marketing of soybeans and soybean products. *Illinois Agric. Exp. Station, Bulletin* No. 386. p. 425-544. Dec. [34 ref]
• ***Summary:*** Loaded with statistics, graphs, tables, maps, and photos, this is one of the best reports on soybeans in America published to date. Contents: Introduction. The supply of soybeans and soybean products: Domestic production of soybeans, production of soybeans in Illinois, soybean varieties in Illinois, costs and returns in producing soybeans, imports of soybeans and soybean products (soybeans, soybean oil meal and cake, soybean oil, net imports, exports including reexports, export-import balance), import duties levied on soybeans and soybean products, supply of soybean oil and competing oils and fats. Consumption of soybeans and soybean products: Disposition of the domestic crop, utilization as beans, utilization of soybean oil meal, utilization of soybean oil (in food and industrial products), methods of processing soybeans for consumption (expeller, hydraulic press, solvent extraction), competition from other oils, distribution of gathered soybeans by uses. Practices in marketing soybeans and soybean products: Sources of market information, time of movement, varieties marketed in different sections of Illinois, selling soybeans for seed, selling soybeans for industrial uses (the Peoria Plan of 1928-29, Grange League Federation Exchange of Ithaca, New York, the Soybean Marketing Association of Illinois formed in Oct. 1929 {p. 490-91}), selling soybean oil and oil meal (National Soybean Oil Manufacturers Association of Chicago). Elements of cost in marketing soybeans: Marketing mill beans, processing beans, marketing seed beans, exporting beans. The inspection system and soybean grades. Special considerations applying to the valuation of soybeans and soybean products: Use-values of soybeans and soybean products in feeding, derivative products as factors in the market valuation of soybeans. Prices of soybeans and soybean products: Prices of seed beans, prices of soybean oil, prices of soybean oil meal, use as affected by prices. Meeting the price risks in marketing. International trade in soybeans and soybean products. Summary. Literature cited. Sources of data.

"In Manchuria in 1930 there were 13 districts in which over 40% of the crop land was devoted to soybeans, the highest proportion being 65%. The proportions for the three Manchurian provinces as units were as follows: Kirin (eastern) 33.2%; Hailungkiang [Heilungkiang] (northern) 30.7%; and Liaoning (southern) 22%." Some soybeans were grown in Inner Mongolia.

Illinois was the largest soybean producer in 1924, followed by North Carolina, Missouri, and Indiana. "Few soybeans were grown in Illinois previous to 1890, when J.C. Utter of Mt. Carmel, Wabash county, began production of this crop. Frank Hurrelbrink of Taylorville, Christian county, known because of his work with the Hurrelbrink variety of soybean, started his work in 1897. He has grown soybeans continuously since that time, experimenting with many varieties. C.A. Rowe and his father, of Jacksonville, Morgan county, grew soybeans about 1899. Somewhat earlier than this the late Ralph Allen of Delavan, Tazewell county, became interested in soybeans and furnished seed beans to Illinois farmers as well as to interested persons in other states, in Hawaii, and in Alaska. C.L. Meharry of Attica, Indiana, who owns a large tract of land near Tolono, Champaign county, Illinois, has been an active soybean grower since 1909. The year following the Meharry venture, John T. Smith, also near Tolono, began to grow soybeans on

a very limited scale, and in 1921 undertook active production. During the last decade soybeans have become an increasingly popular crop on Illinois farms."

Of the 1915 U.S. soybean crop, 52% of the entire crop acreage was used for hay, 15% was grazed, 4% was plowed under, and only 29% was harvested for beans; 18.2% was used for seed, 0.9% for human food, and 9.9% as beans for feed.

In 1930 some 11,975,000 bushels of soybeans were gathered or harvested in the U.S. Of these soybeans, 40.1% were crushed, 33.6% were used as seed, 23.0% were used whole directly as feed, 1.7% were ground and used as feed, and 1.7% were ground and used as food.

From the soybeans crushed in 1930, some 37,200,000 lb of soybean oil were produced. Its four main uses were: (1) Paint and other industries: Paint and varnish 24.2% of the total oil, linoleum and oil cloth 10.8%, other uses 9.4. (2) Soap kettle 22.8%. (3) Edible uses: Oleomargarine 2.0%, lard substitutes 1.3%, other food products 12.8%. (4) Increased stocks including oil equivalent 16.7%.

In 1930 some 110,000 tons of soybean meal resulted from crushing. Of this, 76.5% was used in commercial feeds, 13.6% in other feeds, 0.8% as soybean flour for food, 0.045% as infant and diabetic foods, and 9.0% as other uses including glue.

Page 460 lists the types and brand names of many commercial soybean food, feed, and industrial products. Consumption of soybeans as foods has increased appreciably since 1930. U.S. food products include chocolate bars (30% soybean flour), cocoa (up to 60% soybean flour), sausages (up to 50% soybean flour), bread (7½% soybean flour), soybean cheese, soybean milk, soybean ice cream, Soya Cream Biscuits, La Choy Soy Sauce, Soyolk (flour), V-Zoy, Lektizoy, Zoy Soup, Zoybeans (cooked soybeans), Bacon and Zoy Beans, Zoy Bouillon, Soy Bean Biscuit, etc. Canadian food products are: Milqo (soy milk), Vi-tone (chocolate), Soya Flour, Soyex-Malt-Cocoa Drink, Soyex, Macaroni.

"In the foreign trade of the United States imports of soybean oil have appeared since 1910 and of soybeans since 1914. The United States exported domestic soybeans to Europe in quantity for the first time during the fall of 1931, more than 2 million bushels being shipped from the 1931 crop." Address: 1, 3-4. Dep. of Agricultural Economics; 2. Dep. of Agronomy. All: Univ. of Illinois.

339. Stewart, C.L.; Burlison, W.L.; Norton, L.J.; Whalin, O.L. 1932. Supply and marketing of soybeans and soybean products: Tables 1-19 (Document part). *Illinois Agric. Exp. Station, Bulletin* No. 386. p. 425-544. Dec.

• ***Summary:*** Tables show: (1) Value of the soybean crop in Illinois, 1928-31. (2) Soybean production in selected countries, average 1909-13, annual 1920-31 (in tons of 2,000 lb). The countries: Manchuria, Korea, Dutch East Indies, Japan, United States, total for these 5 reporting countries. (3) Soybean production in the United States by geographic divisions, 1929. The greatest production was in the "East North Central" states; 4.977 million bushels comprising 57% of total U.S. production.

(4) Production of gathered soybeans in selected states and in the United States, 1922-1931 (thousand bushels). In 1922 the top six soybean producing states were North Carolina (1,600), Illinois (812), Ohio (465), Indiana (240), Virginia (208), and Missouri (165). Total USA: 4,333. In 1924, Illinois (1,380) passed North Carolina (1,160) to become the leading U.S. producer. In 1931 the top six states were Illinois (6,055), Indiana (3,062), North Carolina (1,498), Missouri (1,080), Iowa (578), and Ohio (560). Total USA: 14,917.

(5) Total equivalent solid acreage of soybeans grown in selected states and in the United States in 1922-1930 (thousands of acres). In 1922 the top 4 states were North Carolina (224), Illinois (169), Tennessee (154), and Indiana and Alabama (113, tie). Total USA: 1,226. In 1923 Illinois passed North Carolina to take first place. In 1930 the top 4 states were Illinois (719), North Carolina (478), Iowa (463), and Indiana (402). Total USA: 3,758. (6) Yield per acre of gathered soybeans in selected states and in the United States, 1922-1931 (bushels per acre). In 1922 the U.S. average was 13.8 bushels. Iowa had the highest: 22 bushels. In 1931 the U.S. average was 15.6 bushels. The top 4 states were Ohio (20), Indiana (17.8), Illinois (17.5), and Iowa (17).

(7) Proportion of soybean acreage gathered for beans, cut for hay, and interplanted with other crops, Illinois, 1922-1931. Gathered for beans rose from 32.1% in 1925 to 55.7% in 1930. Cut for hay rose from 41.4% in 1922 to 54.4% in 1931. Interplanted with other crops dropped from 20.1% in 1922 to 1.3% in 1931. (8) Production of soybeans in twelve leading Illinois counties, with rank by years, 1929-1931. The top four counties were Christian (692,200 bu in 1931), Champaign, Piatt, and Moultrie. (8A) Soybean varieties in Illinois: Varieties gaining favor: Illini, Manchu, Dunfield, Mansoy, Laredo. Holding their own: Ebony, Virginia, Ilsoy, Peking, Black Eyebrow, Wilson V [Wilson-Five], Hurrelbrink. Losing favor: Haberlandt, Mammoth Yellow, Hamilton (Ohio 9035), Ito San, A.K., Midwest.

(9) Varieties of soybean seed offered for sale by growers, in order of frequency of offers printed in Farm-Bureau publications, Illinois, 1921, 1925, and 1931. For each year the varieties are listed under nine crop reporting districts, and also for the entire state. In 1921 for the entire state, in descending order of frequency: Midwest, Ebony, A.K., Peking, Ohio, Ito San. In 1925: Manchu, Midwest, A.K., Ebony, Virginia, Ilsoy, Ohio, Black Eyebrow, Haberlandt, Peking, Wilson, Ito San. In 1931: Illini, Manchu, Virginia, Ilsoy, Ebony, A.K., Mansoy, Dunfield, Peking, Wilson, Midwest, Black Eyebrow, Haberlandt. (10)

Average cost of producing soybean in Illinois and Indiana for specified periods, 1921-1930. The highest return above computed cost per acre (profit) is from soybeans gathered for seed using a combine: $9.55/acre. When soybeans are cut for hay, a loss usually results.

(11) Imports of soybean oil, soybean oil meal and cake, and soybeans, United States, 1915-1931. (12) Duties levied on soybean oil, soybean oil meal and cake, and soybeans under recent tariff acts, United States, 1909-1930. In 1909 and 1913 all three commodities were on the "Free list." In 1921 oil the tariff on oil was 20 cents per gallon (2.67 cents per lb); the other two were free. In 1922 the tariff on oil was reduced to 18.75 cents per gallon (2.5 cents per lb), the tariff on soybeans was ½ cent per lb (30 cents per bushel), and meal was free. In 1930 the tariff on oil was increased to 26.25 cents per gallon (3.5 cents per lb, not less than 45% *ad valorem)*, the tariff on meal and cake was $6/ton, and the tariff on soybeans was increased fourfold to $1.20/bushel.

(13) Domestic production of soybean oil and other vegetable oils from domestic materials, United States, 1912-1931 (thousands of pounds). Statistics are given for cottonseed oil (the leader by far during the entire period), peanut oil, olive oil, corn oil, linseed oil, soybean oil, and total vegetable oil. Soybean oil rose from 751,000 lb in 1922 (the first year for which figures are given) to 39,129,000 lb in 1931. The ranking in 1931 was: Cottonseed oil (1,417,226 x 1,000 lb), linseed oil (203,613), corn oil (113,145), soybean oil (39,129), peanut oil (13,730), and olive oil (1,509).

(14) Imports of foreign vegetable oils, oil equivalent being used for oil-bearing materials, United States, 1910-1931 (thousands of pounds). Statistics are given for soybean oil, coconut oil and copra, peanut oil, olive oil (edible), olive oil (inedible, including olive oil foots), palm oil (incl. palm kernel), linseed oil and flaxseed, all other vegetable oils and materials, total vegetable oils and materials. For net soybean oil imports, the earliest figure is 24,784 in 1912; it peaked at 335,439 in 1918, and had fallen to 4,018 in 1931. Total vegetable oils and materials imported increased from 440,412 in 1910 to 1,525,114 in 1931.

(15) Exports of soybean oil and five other leading vegetable oils, United States, 1919-1931 (thousands of pounds). Statistics are given for soybean, cottonseed, coconut, linseed, corn, and peanut. The leading export throughout this period was cottonseed oil. For soybean oil exports, the figure for the last half of 1919 is 27,715 and fir 1920 it is 43,512. Thereafter the amount exported each year is very small, rising from 1,944 in 1921 to 5,448 in 1931.

(16) Total production, imports, exports, and net balance of vegetable oils and animal fats, exclusive of butterfat but inclusive of fish oils, United States, 1912-1931. (17) Use of soybeans, by acreage, United States, 1915, 1929, and 1930 crops. The percentages of the entire crop acreage in 1915 are: Hay 52%, grazed 15%, plowed under 4%, and gathered for beans 29% (of which: Seed 18.2%, human food 0.9%, and feed 9.9%). In 1930: Hay 56%, grazed 14%, plowed under 4%, and gathered for beans (11,975,000 bushels) 30% (of which: Seed 10.5%, crushed or ground 11.5%, and feed 8.0%).

(17A) Commodities in which soybeans or soybean products are used (p. 460): Food products (USA and Canadian), feed products, industrial products. (18) Soybean oil meal produced and imported into the United States, 1922-1930 (tons of 1,000 lb). Domestic production increased from 3,811 tons in 1922 to 110,000 tons in 1930. Imports increased from 15,612 tons in 1922 to 55,107 tons in 1930. Total of domestic production + imports increased from 19,423 tons in 1922 to 165,107 tons in 1930.

(19) Adaptability of soybean oil to use in various products (p. 464): The products are: Drying products (paint, varnish, linoleum and oil cloth, waterproof goods), soap products (hard and soft soaps), edible products (Lard compounds, cooking oils {if odor permanently eliminated}, salad oils, fountain drinks, candy, mayonnaise, margarin), miscellaneous (core oil, printer's ink). Four levels of adaptation and a maximum percentage are given for each use: Probable, inferior, satisfactory, and superior. The two superior adaptations are paint (to prevent yellowing), and soft soaps. Note: "The margarin industry was one of the first to use considerable amounts of soybean oil and at present it absorbs in the United States approximately 750,000 pounds annually."

340. *Census of Industry: Report on the Linseed & Soybean Oil Industry.*1932-1940. Serial/periodical. Ottawa, Canada: Bureau of Statistics. Annual. *
Address: Ottawa, Canada.

341. **Product Name:** Biscuits (Containing Soybean Flour).
**Manufacturer's Name:** Christie, Brown & Company.
**Manufacturer's Address:** Toronto, ONT, Canada.
**Date of Introduction:** 1932.
**New Product–Documentation:** F. Dimmock. 1936. "Division of Forage Plants: A report on the present status of the soybean industry, particularly in western Ontario." In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. Appendix "B." p. B-3 to B-4. "The Christie Brown Company, biscuit manufacturers, Toronto, have been large buyers of soybean flour and have expressed a preference for the Dominion Linseed Oil Company's product over soybean flours which have been previously imported. The price of 6 cents per pound is considerably lower than 9 cents per pound, which was formerly paid for the imported flours."

Simpson's. 1936. "Pure food market–Adelaide 8411" (Ad). *Toronto Daily Star* (Canada). June 24. p. 19. "Biscuits–Christie's Soy-O-Wheat made from Soy Bean Flour, lb. 25¢."

342. **Product Name:** Soybean Oil, and Soybean Oil Meal (Named Blue Blossom Soybean Oil Meal by 1953).
**Manufacturer's Name:** Dominion Linseed Oil Company.
**Manufacturer's Address:** Baden, ONT, Canada.
**Date of Introduction:** 1932.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** F. Dimmock. 1936. "Division of Forage Plants: A report on the present status of the soybean industry, particularly in western Ontario." In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. Appendix "B." p. B-3. "The Dominion Linseed Oil Company plant at Baden, Ontario... is operating a press of the expeller type at this point and is said to have been processing soybeans for 4 to 5 years" [i.e. since about 1931 or 1932]. "Mr. Livingstone, president of the Dominion Linseed Company, was interviewed in Toronto and states that in addition to soybean oil and meal his company is producing soybean flour at its plant in Owen Sound. This flour has been made by a special process and retains the entire oil content of the bean."

Soybean Blue Book. 1947. p. 64. "Processors of soybeans in Canada. Toronto–Dominion Linseed Oil Co., 587 Fleet St." In the 1948 Soybean Blue Book the address is unchanged.

Soybean Blue Book. 1949. p. 90. "Montreal–The Dominion Linseed Oil Co., Ltd. General offices, 837 Mill St., Montreal 3, Quebec. Plants at Baden, Ontario; Owen Sound, Ontario; St. Boniface, Manitoba; and Montreal, Quebec." Note: It is not clear whether each of these plants crushes soybeans. Earlier information and the 1953 Blue Book entry (p. 96) seems to indicate that only the plant in Baden, Ontario, does. This is the earliest known commercial soy product made in Manitoba, Canada.

Soybean Blue Book. 1953. p. 96. "Baden, Ontario–Dominion Linseed Oil Co., Ltd. Ph. 14. Main office: Montreal, Quebec." 5 screw presses, capacity 75 tons. Storage capacity 95,000 bu. "Blue Blossom" soybean oil meal. Soybean operations 300,000 bu. Served by CN RR [Canadian National Railroad]. In the 1955 Blue Book neither this plant nor the parent company are mentioned.

343. **Product Name:** Full-Fat Soybean Flour.
**Manufacturer's Name:** Dominion Linseed Oil Company.
**Manufacturer's Address:** Owen Sound, ONT, Canada.
**Date of Introduction:** 1932.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** F. Dimmock. 1936. "Division of Forage Plants: A report on the present status of the soybean industry, particularly in western Ontario." In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. Appendix "B." p. B-3. "The Dominion Linseed Oil Company plant at Baden, Ontario... is operating a press of the expeller type at this point and is said to have been processing soybeans for 4 to 5 years" [i.e. since about 1931 or 1932]. "Mr. Livingstone, president of the Dominion Linseed Company, was interviewed in Toronto and states that in addition to soybean oil and meal his company is producing soybean flour at its plant in Owen Sound. This flour has been made by a special process and retains the entire oil content of the bean. It is of excellent quality, having been thoroughly tested at the University of Illinois in comparison with other soybean flours of United States origin and declared as equal or better than most of them for cooking purposes. This company is prepared to produce in addition a low oil content flour and plans to do so in the near future. The company is having considerable difficulty marketing its soybean flour. Mr. Livingston claims that the large wheat milling companies control the bakeries and are strongly opposed to an additional flour being placed on the market, especially when there is any possibility of such flour being used in bread-making. He also claims that before he can definitely establish the value of his flour, both from the standpoint of nutrition and use, it will be necessary to show results that have been obtained in baking tests conducted by an impartial authority, such as the Dominion Department of Agriculture. Mr. Livingston feels that the Department should conduct experiments in the use of soybean flour, particularly for bread-making. Many advantages are claimed for the soybean-wheat bread, such as, higher nutritive value, better keeping qualities, and greater appetite appeal. Judging from the results obtained in work of this nature carried on by the Food Research Division, U.S.D.A., such experiments would be well worth while and the results of much practical value. Mr. Livingston claims that his company could utilize a million bushels of soybeans for flour purposes alone if the flour could be marketed to advantage. This is undoubtedly a pretty big statement, but he has great faith in the value of soybean flour. He believes the opposition of the wheat milling companies will only be overcome by the publishing of the results of experiments, such as those mentioned above, carried on by some government department."

344. Stirrett, G.M. 1932. Observations on the outbreak of green clover worm attacking beans during the season 1931. *Report of the Entomological Society (Ontario Ag. Dept.)* 1931:75-82. *

345. Zavitz, Charles A. 1932. Spiritual life: Personal thoughts. Ilderton, Ontario, Canada: Published by the author. 15 leaves. Unpaginated. 16 cm.
• ***Summary:*** The author was born and raised a Quaker. These thoughts, written when he was age 69, represent the

heart of his spiritual beliefs. For example: "To cooperate with the Divine Spirit completely is the supreme achievement of man."

"Love is the great cementing force of the human family. It was the predominating characteristic of Jesus Christ. He taught that God is a Loving Father and said to mankind 'Love one another.'"

"When people are in tune constantly with the Infinite God they can use to the best possible advantage all of their physical, mental, and spiritual powers."

"The real value of the human soul under the guidance of the Divine Spirit is much greater to the individual than all of the other things in the world combined."

"Why do so many professing Christians deprive themselves of so much Spiritual Power by adhering to so many non-essentials which divide into so many individual churches and sects which cause so much confusion and competition and sometimes strife and even bitterness? Jesus said 'Behold, the kingdom of God is within you.'"

"Human bodies are the holy temples of the Loving God and should not be destroyed by murder, war, capital punishment or lynch law. Moses said to the people through the Sixth Commandment 'Thou shalt not kill' and Jesus through the Sermon on the Mount 'Love your enemies.'"

"Being a Quaker with Quaker parents I learned early in life to listen in silence to the 'still small voice' of my Spiritual Father. During and since my forty-one years of very active service in college teaching and in scientific research in agriculture, the Christ Spirit within me has been the most precious thing in my life."

Note: One thought appears on the front side of each page of this little book. The first letter is a large, square, embellished red majuscule. The paper is beige with rough edges. Address: Ilderton, Ontario, Canada.

346. Poland Yellow: New U.S. domestic soybean variety. 1932?
• ***Summary:*** Sources: Bernard, R.L.; Cremeens, C.R. 1970. "Evaluation of maturity group 00 to IV named varieties of the U.S.D.A. soybean collection." Urbana, Illinois: United States Regional Soybean Laboratory. iii + 31 p. Dec. RSLM 244. (A revision of RSLM 205, 1960). See p. 12-13. "Variety: Poland Yellow. Prior designation: PI 128182. Source: Unknown (from Central Exp. Farm, Ottawa, Ont., 1938). Year named or released: by 1932. Developer or sponsor, year selected: Unknown."

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 16-17. Poland Yellow is in the USDA Germplasm Collection. Maturity group: 0. Year named or released: by 1932. Developer or sponsor: Department of Agriculture, Central Experimental Farm, Ottawa, Ontario, Canada (PI 128.182). Literature: 18. Source and other information: Unknown origin, possibly from Poland. Received at Ottawa, Ontario, Canada, about 1931. Prior designation: None. Address: USA.

347. DeBoth, Jesse Marie. 1933. Chinese luncheons proving popular: Clever hostess finds chop suey or chow mein pleases. Prepared easily: Place cards in fantastic characters simulate Chinese lettering. *Toronto Daily Star (Canada).* March 4. p. 26.
• ***Summary:*** A recipe for "Chop suey or chow mein" calls for "2 tablespoons soy sauce." The word "soy sauce" is mentioned three times in the directions.

348. DeBoth, Jessie Marie. 1933. New and different are these recipes: They are especially suited for birthday and other parties. Rainbow cake gay: Checkerboard ice cream provides many opportunities for novel color combinations. *Toronto Daily Star (Canada).* March 16. p. 27.
• ***Summary:*** A recipe for Oriental shrimp omelette calls for "1 teaspoon Chinese soy sauce." The word "soy sauce" is mentioned once in the directions.

349. DeBoth, Jessie Marie. 1933. Long, slow cooking makes better stew: Meat becomes tough and stringy if boiled fast. Pork chop suey: Chinese vegetables and soy sauce make appetizing meal. *Toronto Daily Star (Canada).* April 6. p. 30.
• ***Summary:*** A recipe for Pork chop suey calls for "1 tablespoon soy sauce." The word "soy sauce" is mentioned twice in the directions. "Serve soy sauce with the chop suey."

350. **Product Name:** Soybean Oil, and Soybean Oil Meal.
**Manufacturer's Name:** Soya Bean Oil and Meal Co-operative Company of Canada Ltd. (The).
**Manufacturer's Address:** 103 Colborne St. north, Chatham, ONT, Canada.
**Date of Introduction:** 1933. April.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** *The Chatham Daily News* 1932. May 28. p. 1, 12. "Soya Bean Cooperative Gets Charter." "A charter has been granted to 'The Soya Bean Oil and Meal Co-operative Company of Canada Limited'..." Note: This is the earliest document that the Chatham Library can find concerning this company (April 1997).

Vernon's City of Chatham (Ontario, Canada) Directory. 1933. Corrected to April 1933. p. 189. "Soybean Oil & Meal Co-operative Co. Ltd., G.E. Biles, mgr, Colborne n, w cor of Adelaide" (Company located at Colborne St. North, west corner of Adelaide).

*Agricultural and Industrial Progress in Canada.* 1935. "Linseed oil." 17(2):27-28. Feb. "The production of the Canadian linseed and soy bean oil industry in 1933, according to a report of the Dominion Bureau of Statistics,

was valued at $2,086,000. The number of plants in operation was ten and the capital investment $3,022,000.

"Of these ten plants two used soy beans as their raw material, namely, The Canadian Soyabeans Limited of Milton, and the Soybean Oil and Meal Co-operative Company of Canada Limited of Chatham, both in southwestern Ontario." The value of soy-bean oil and meal was no more than $49,071.

C.A. MacConkey. 1935. Soybeans. Ottawa, Ontario, Canada: National Research Council. p. 65. "Firms Engaged in the Soybean Industry in Canada." "The Soy Bean Oil and Meal Co-operative Company of Canada, Ltd., Chatham, Ontario."

Shepherd's City of Chatham (Ontario, Canada) Directory. 1936. Page B-162 states: The company name and address are exactly the same as in 1933, except that the word "Soybean" is now spelled "Soyabean." So the company name was spelled in three slightly different ways prior to 1936. The manager is now D.D. Gagner. Page C-4 gives the address as 103 Colborne, north side, from North William to Limits. Note: In the 1937-38 edition of this directory, this company is no longer listed. Rather, A.E. Brotherton is at 103 Colborne and Verne Mifflin is at 103½ Colborne. Then in the 1938-39 edition no-one is listed at this address. And in the 1939-40 edition, Ernest Lane is listed at 103 Colborne.

F. Dimmock. 1936. "Division of Forage Plants: A report on the present status of the soybean industry, particularly in western Ontario." In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. Appendix "B." p. B-2. Describes Canada's second soybean crusher: "The next effort to start a mill was made at Chatham, Ontario, in 1932 by a farmer's co-operative under the name of the Soybean Oil and Meal Co-operative Co. of Canada, Limited. Farmers secured membership in the company by the purchase of a share valued at $50 and this gave the purchaser prior rights to sell beans to the company. The number of members was said to have reached from 700 to 800 farmers. Under an agreement with the Archer-Daniels-Midland Company, Milwaukee, Wisconsin (one of the largest millers of soybeans in the United States), this company installed the machinery and provided a manager, Mr. B.E. Biles, to run the mill. In return for these services the Archer-Daniels -Midland Company was to receive 5 cents for every bushel of beans milled. The mill was of the Anderson expeller type and had a total capacity of about 20 tons of beans a day (24 hours)... The mill operated at intervals for a few months, but crushed only 22,000 bushels of beans. The first year's results were disappointing to the company and the growers alike. In 1933 the price of soybean products rose considerably," and the mill handled something over 50,000 bushels of beans. "The final blow came when Mr. Biles, the manager, disappeared with about $7,000 of the company's funds. The plant is now idle and did not open for the 1935 crop."

J.W. Tanner. 1973. "Where we are and how we got there: An historical review of soybean production in Ontario." In: Ontario Soya-Bean Growers' Marketing Board, ed. 1973. Ontario Soybean Symposium 1973. Ottawa: Agriculture Canada. p. 13, 18. "Two short-lived crushing plants were established in the south west part of Ontario in the mid-1930s, one of which was located at Shelbourne (or Colbourne/Colborne) Street in Chatham." Note: Founded in 1934 (see p. 18), this was apparently the first crushing plant in Canada.

351. Browns' Bread Limited. 1933. Enjoy its unequalled flavor: Marathon Meal health bread (Ad). *Toronto Daily Star (Canada).* May 30. p. 5.
• ***Summary:*** "The appetizing taste of Browns' Marathon Meal bread has made it Toronto's most popular health loaf. There's no need to sacrifice taste for health."

"Get it from Browns' bakerman at your door, or at your neighborhood health store or phone the bakery for special delivery [3 phone numbers in the east, north, and west are given].

A circular logo, surrounded by stylized heads of wheat, states: "Marathon health bread: A health loaf, recently perfected after much careful research work." Besides the regular ingredients, it contains rice polishings, wheat germ, and "4. Soyex–a product of the Soya bean, rich in Vitamin 'D'–the sunshine vitamin–as found natural food. Not produced artificially, with a strongly Alkaline ash."

A large photo shows the 24 oz. loaf–10 cents (wrapped). A 12-oz. loaf is also sold. Address: Toronto. Phone: GL. 1161.

352. Dike, Theodore Williams; Cone, C.N. Assignors, by mesne assignments, to Laminating Patents Corp. (Seattle, Washington; a corporation of Delaware). 1933. Process of rapid edge gluing wood sheets and the product thereof. *U.S. Patent* 1,916,134. June 27. 13 p. Application filed 19 Sept. 1929. 9 drawings.
• ***Summary:*** "Our principal object is to greatly speed up this operation." Address: 1. New Westminster, British Columbia, Canada; 2. Seattle, Washington.

353. Dike, Theodore Williams. Assignor, by mesne assignments, to Laminating Patents Corp. (Seattle, Washington; a corporation of Delaware). 1933. Process of gluing. *U.S. Patent* 1,923,922. Aug. 22. 4. Application filed 20 Feb. 1932. [2 ref]
• ***Summary:*** Includes use of soya-bean flour. Address: New Westminster, British Columbia, Canada.

354. *Toronto Daily Star (Canada).*1933. New companies. Oct. 7. p. 15.

• ***Summary:*** "Ottawa, Oct. 7–Incorporation has been granted to the following joint stock companies:... Dominion Soya Industry, Ltd., Montreal [Quebec], 50,000 shares without par value;..."

Note: This is the earliest document seen (Jan. 2010) that mentions Dominion Soya Industry, Ltd. (Montreal, Quebec, Canada).

355. Dominion Bureau of Statistics, Ottawa, Canada. 1933. Report on the linseed and soybean oil in Canada. *Trade of Canada.* *

• ***Summary:*** In 1933 in Canada there were 10 plants in operation in the linseed and soybean industry, with a total capital investment of $3,022,676. The value added to the raw materials used by manufacturers was $544,438 and they furnished employment to 201 persons. How this is divided between linseed and soybean oil is not stated. Address: Ottawa, Canada.

356. Laughland, Jas. 1934. Farm tests on soybeans: Farmers find soybeans useful for both hay and grain–Results best when grown in drills. *Farmer's Advocate (Ontario, Canada)* 69:176. March 15.

• ***Summary:*** "During the past few years soybean demonstrations have been conducted in every county of Ontario. The work was carried on by farmers in cooperation with the Field Husbandry Department, Ontario Agricultural College." The average yield of seed over a 3-year period as reported by 92 farmers was 19 bushels per acre, and that of hay, from 139 tests, was 2.2 tons per acre. The growers reported favorably, as evidenced by quotations from farmers in many different counties. The author gives 30-45 pounds as the amount of seed required per acre when the soy beans are grown for seed production in rows 28 inches apart, and 1½ to 2 bushels (90-120 lb) when drilled solid for hay. Address: Dep. of Field Husbandry, Ontario Agricultural College, Canada.

357. Torres Herrera, José M. 1934. El haba soya, su cultivo y beneficio [The soybean, its culture and benefits]. *Boletin Agricola (Medellin, Colombia)* 8(189):1180-92. April. [Spa]

• ***Summary:*** Contents: Introduction. Climatological conditions. Soils appropriate for this crop. Inoculation with bacteria. Preparation of the soil. Soya in crop rotations. Sowing the seeds. The work of cultivation. Calculation of the cost of production for 6,400 square meters (Data taken from the Palmira Agricultural Experiment Station, Bulletin No. 1; the cost is $0.45 per arroba = ca. 25 lb). Soybean varieties ("Agriculturists interested in planting this crop which has no equal, can obtain seeds free of charge from the Pamira [sic, Palmira] Agricultural Experiment Station or the Antioquia Agricultural Society [Sociedad Antioqueña de Agricultores, Colombia]"). Production of seeds. Yields of various varieties. Harvesting and threshing of the grain. The uses of soya *(la soya).*

Utilization of the plant and seeds of the soybean *(de las habas soyas):* I. The plants as hay, pasture, green forage, ensilage, green manure. II. The seeds as: 1. Whole dry soybeans *(habas secas,* for making infant foods, flour, soup, butter, diabetic foods and breads, cooked whole soybeans, confections, health foods *(alimentos para sano):* soymilk, soybean roasts or steaks, soy sprouts. Breakfast foods: Vegetable curd or cheese *(cuajada o queso vegetal),* soy sauce, malted milk, soy coffee cakes, flour, livestock feed). 2. Green vegetable soybeans *(habas verdes).* 3. Soy flour *(harina de habas).* 4. Soy oil *(aceite de habas).*

Soya as human food. The composition of various legumes. Soy flour. Soy oil. Soy milk *(leche de soya):* Nutritional comparison of soy milk and cow's milk, powdered soymilk, fermented soymilk, tofu *(queso soya),* soy casein *(Caseína).*

Whole dry soybeans: Roasted soybeans *(habas tostadas),* soy coffee *(café de soya),* soy chocolate *(chocolate de soya).* Green-seeded soybeans *(habas soyas verdes o legumbres):* Soy sprouts, soy sauces. Edelsoya (soy flour made by Berczeller).

The value of soy forage. Soybeans in mixtures with other crops. Green manure. The concept of Dr. Uribe Echeverri, minister in Brazil.

Page 1180 states: "Climatological conditions. The soybean is suited to the temperate zones but it can become acclimatized to warmer climates and it has succeeded at the agricultural experiment stations of Valle de Cuaca and of Tolima and in various regions of the Intendencia del Chocó. It is probable that some varieties from England and from the north of Canada can acclimatize themselves in good conditions in our cold lands.

Note 1. This is the earliest document seen (May 2009) concerning soybeans in Colombia, or the cultivation of soybeans in Colombia. Note 2. No mention is made of soya in Nicaragua.

Note 3. This is the earliest Spanish-language document seen that uses the term *habas tostados* to refer to soynuts.

Note 4 This is the earliest Spanish-language document seen (June 2009) that uses the term *habas verdes* to refer to green vegetable soybeans. Address: Agrónomo Nacional de la Intendencia del Chocó [Colombia].

358. Red & White Stores. 1934. The Red & White–Leader stores: Salmon week (Ad). *Toronto Daily Star (Canada).* May 31. p. 38.

• ***Summary:*** In the middle left of this full-page ad: "Vi-Tone 6 oz. tin–27¢. A soya bean food. Medical men recognize its value for health." Address: Toronto.

359. *New York Times.*1934. Soy bean acreage in Canada rises: Crop is now on a commercial basis. June 10. Section

8. p. 18.
• ***Summary:*** "Soy beans are now being grown in Canada on a commercial scale... In 1929 some 1,000 acres were planted to this vegetable; in 1933 the total acreage rose to 15,000." In the United States about 4,000,000 acres are devoted to this crop.

360. *Toronto Daily Star (Canada).*1934. Questions and answers. June 11.
• ***Summary:*** The section titled "Soybean pamphlet" states: "O.F.: Soybean flour, on account of its extremely low starch content, is especially valuable for diabetic persons. The flour is being successfully used in making bread, biscuits, muffins, pastry, etc., and by reason of its composition increases the nutritive value of these products. The soybean is comparatively new as a farm crop in Canada, and the pamphlet on soybeans issued by the Dominion Department of Agriculture is intended to give information as to the characteristics of the soybean plant and seed; its adaptation to soil and climatic conditions; the various purposes for which soybeans are used; the most suitable varieties that are available; and general instructions on how the crop should be grown and handled.

"To obtain a copy, write to Publication Branch, Dept. of Agriculture, Ottawa" [Ontario, Canada].

361. Iliff, John W.; Robinson, Paul. Assignors to the Canadian Industries Ltd. 1934. Resin; coating composition. *Canadian Patent* 342,592. June 26. *

362. Phillips, J.B. 1934. The utilization of the soya bean. *J. of the Society of Chemical Industry–Chemistry & Industry Transactions and Abstracts (London)* 53(29):627-28. July 20.
• ***Summary:*** This article is based on a "Lecture delivered before the Montreal [Canada] Section of the Society of Feb. 21, 1934." It contains a short overview of soybean history, nutritional composition, and utilization (for feed, food, and industry), plus some statistics. In the USA some soybeans are "ground into flour and used in such articles as bread, macaroni, sausage, chocolate, baby food, etc. Most of the beans which are not used for forage are crushed and the oil separated... The annual consumption of soya bean oil in the United States is approximately as follows" (in million lb): For paints and lacquers 9.0; soaps and candles 9.0; cooking oil, mayonnaise, sardines, lecithin manufacture 5.0; linoleum and oilcloth 4.0; printing ink 3.5; oleomargarine and lard substitutes 1.5.

"In Manchuria, where the soya bean is a staple article of diet, little meat is eaten; the protein of the bean resembles that of meat and may very well be substituted for it."

"The uses of the oil cake are many and varied. When fermented, the meal produces a cheese which has a strong odour at first, but which decreases with age. The soya meal, after being heated with lime and then treated with caustic soda, produces an adhesive which is quite water-resistant and is used extensively on the Pacific Coast in the manufacture of plywood. It is also used as a cement in the manufacture of insulating boards intended for use in refrigerators. The soya meal may also be treated with salt solution and borax and the protein extracted. After precipitation, a pure casein is obtained which may be used as sizing for paper and as an adhesive."

"Macaroni may contain as much as 30% soya flour, which is also used in the manufacture of cocoa. Some chocolate bars are known to contain 60% of soya flour. A plastic may be made from soya bean casein by the use of formaldehyde as in the case of milk casein. The soya bean is unique among vegetables in containing a relatively large amount of lecithin." The commercial product is found to contain about 70% true lecithin and 30% oil or fat. Lecithin is used in the chocolate and baking industries. Address: Dr. [Canada?].

363. Don Avon Marketeria Limited. 1934. Toronto's show place of fine foods (Ad). *Toronto Daily Star (Canada).* Dec. 13. p. 7.
• ***Summary:*** In the upper right corner of the ad: "La Choy vegetables, tin–37¢. Chow mein noodles, tin–25¢. Bean sprouts, tin–28¢. "Soy Sauce, tin–15¢."

Note: This soy sauce was probably made by La Choy in the USA.

A similar ad appeared in the Dec. 20 (p. 36) issue of this newspaper. In the upper left corner of the ad we read: "Imported delicacies: Bean sprouts, tin–15¢. Soy Sauce, bottle–28¢... La Choy vegetables–37¢." Address: 837 Danforth Ave., Toronto.

364. The development of soya beans in the United States and Canada. 1934. Undergraduate thesis, Ontario Agricultural College, Canada. *

365. A.K. (Harrow): New Canadian domestic soybean variety. 1934. Seed color: Yellow, hilum brown.
• ***Summary:*** Sources: Dimmock, F.; Kirk, L.E. 1934. "Soybeans." *Canada Department of Agriculture (Ottawa), Pamphlet* No. 155. 18 p. New Series. See p. 11-17. "Based upon results of tests conducted by the Dominion Experimental Farms Branch, the following varieties are considered the best of those available at present for production in Canada." A table (p. 11) lists seven varieties; for each is given the maturity and colour of the seed. The last of these is: "A.K. (Harrow), very late, yellow (brown hilum)." This variety also appears in numerous other tables and in two photos. In most cases it gave good yields at Harrow of seeds, forage, and/or hay.

Dimmock, F. 1941. "Canada includes many excellent soybean acres." *Soybean Digest.* May. p. 5. "An active

soybean research program has already resulted in the development of the following varieties: Mandarin (Ottawa), A.K. (Harrow), Kabott and Pagoda by the Dominion Experimental Farms, Dominion Department of Agriculture,..."

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 1. "A.K. Harrow–Dominion Experiment Station, Canada."

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 8-9. A.K. (Harrow) is in the USDA Germplasm Collection. Maturity group: III. Year named or released: by 1939. Developer or sponsor: F. Dimmock, Department of Agriculture, ES (Experiment Station), Harrow, Ontario, Canada. Literature: 13. Source and other information: Selected from 'A.K.' by 1928 (appears identical to 'Illini'). Prior designation: A.K. Address: USA.

366. Dimmock, F.; Kirk, L.E. 1934. Soybeans. *Canada Department of Agriculture (Ottawa), Pamphlet* No. 155. 18 p. New Series. Revised in 1939 as Farmers' Bulletin No. 80. [1 ref]

• ***Summary:*** Contents: Introduction. Description of the soybean plant. Soil and climatic adaptation. Uses of soybean seed: Soybean meal, soybean oil, soybean flour. Uses of the soybean for forage and soil improvement. Varieties: Yields, varietal adaptation, protein and oil content of seed, size of seed, colour of seed, registration. Culture: Soil preparation, time of seeding, inoculation of seed, method of seeding, depth of seeding, cultivation, harvesting, threshing. Storage and marketing of seed.

"The soybean gives every indication of becoming a valuable addition to the field crops of Canada. Its possibilities are being actively investigated in almost every province of the Dominion, although production is so far limited almost entirely to the Province of Ontario. The total acreage for the Dominion in 1933 is estimated at 15,000 acres. Since the total acreage in 1929 was probably less than 1,000 acres the increasing interest in the soybean as a field crop is fully evident.

"Present production of the soybean in Canada is chiefly for seed, which, being extremely rich in protein and oil has a high commercial value. The industrial uses for which it can be utilized are numerous. The seed also has considerable value on the farm for live stock feeding and, since the soybean plant itself possesses a high nutritive value for fodder, it is quite possible that as production increases the crop may find its greatest use on the farm, rather than in industry.

"The Dominion Department of Agriculture during the past ten years has introduced and tested hundreds of varieties and strains of soybeans from various parts of the world."

"Since the soybean is comparatively new as a farm crop in Canada this pamphlet is intended to give information as to the characteristics of the soybean plant and seed; its adaptation to soil and climatic conditions; the various purposes for which soybeans are used; the most suitable varieties that are available; and general instructions on how the crop should be grown and handled."

"Based upon results of tests conducted by the Dominion Experimental Farms Branch, the following varieties are considered the best of those available at present for production in Canada." A table (p. 11) lists seven varieties; for each is given the maturity and colour of the seed. Manitoba Brown, very early, brown. Wisconsin Black, early, black. Mandarin (Ottawa), medium early, yellow. Manchu (Hudson), medium late, yellow (black hilum). O.A.C. No. 211, medium late, yellow. Manchu, late, yellow (black hilum). A.K. (Harrow), very late, yellow (brown hilum).

Table 5 (p. 15) shows "Soybean hay and seed production, 1933" for the six of the seven varieties mentioned above in the following places: Nappan, Nova Scotia; Fredericton, New Brunswick; Lennoxville, Quebec; and Charlottetown, Prince Edward Island. At Fredericton, New Brunswick, the soybeans, grown for seed, were harvested from Sept. 21 to Oct. 12. The average plant height ranged from 29 to 42 inches. The yield (in bushels per acre) ranged from 29.8 for Mandarin (Ottawa) to 12.8 for Manchu. At Charlottetown, Prince Edward Island the soybeans, grown for seed, were all harvested on Oct. 31. The average plant height ranged from 18 to 28 inches. The yield (in bushels per acre) ranged from 24.7 for O.A.C. No. 211 to 19.2 for Manitoba Brown. Below this table we read: "Date of seeding: Nappan, May 25; Fredericton, May 26; Lennoxville, June 3; Charlottetown, June 6. Maturity of seed: Fredericton and Charlottetown–Manitoba Brown and Wisconsin Black–ripe; Mandarin–fairly mature; other varieties–immature.

Table 6 (p. 15) shows "Protein and oil content of soybean seed" at 12% moisture for the same six varieties in the following places: Ottawa, Ontario (averages, 4 years, 1929-1932); Harrow, Ontario (averages, 5 years, 1928-1932); Brandon, Manitoba; Calgary, Alberta; Avonport, Nova Scotia; and Sidney, British Columbia. The last four locations are for 1932 only. The highest protein content was 39.72% for Manitoba Brown at Harrow.

Size of seed: A table (p. 16) lists the average weight in grams of 1,000 seeds obtained from seed grown at Harrow during a period of several years: Manitoba Brown 199, Wisconsin Black 165, Mandarin 205, O.A.C. 211 225 (the largest seeds), Manchu 185, A.K. 162.

Note 1. This is the earliest document seen (Jan. 2010) concerning soybeans in New Brunswick province, Canada, or the cultivation of soybeans in New Brunswick. This document contains the earliest date seen for soybeans in New Brunswick, or the cultivation of soybeans in New Brunswick (26 May 1933). The source of these soybeans was probably the Central Experimental Farm, Ottawa, Ontario, Canada.

Note 2. This is also the earliest document seen (Jan. 2010) concerning soybeans in Prince Edward Island, Canada, or the cultivation of soybeans in Prince Edward Island. This document contains the earliest date seen for soybeans in Prince Edward Island, or the cultivation of soybeans in Prince Edward Island (6 June 1933). The source of these soybeans was probably the Central Experimental Farm, Ottawa, Ontario, Canada.

Note 3. This is the earliest document seen (Nov. 2004) that mentions the soybean variety Mandarin (Ottawa). Address: 1. Div. of Forage Plants, Dominion Experimental Farms; 2. Dominion Agrostologist, Ottawa, Canada.

367. Dominion Bureau of Statistics, Ottawa, Canada. 1934. Imports into Canada for consumption, years ended 31 March 1929 to 1933. *Trade of Canada.* Fiscal year ended March 31, 1933.

• ***Summary:*** Under Imports–Sauces–Soy, Soya (Table 36, p. 285), statistics are given from 1929-1932 for gallons and dollar value from United Kingdom, Hong Kong, China, Japan, Syria, United States. Japan was the leading supplier for all four years. In 1929, the peak year, 104,606 gallons were imported worth $45,359. The leading supplier by far was the Japan (67,541 gallons), followed by Hong Kong (33,396 gallons). No statistics are given for soy sauce imports from Syria for 1929, 1930, 1931, or 1932. However, for total imports and for general tariff, under *montant*, a figure of 132 gallons is given for Syria.

Imports of peanut oil and soya bean oil [grouped together as one, so we cannot tell how much was soya bean oil] (p. 300). The United Kingdom was the leading supplier for all four years. In 1931, the peak year, 197,753 gallons were imported worth $129,581. The leading supplier by far was the United Kingdom (118,480 gallons), followed by China (38,941 gallons).

Imports of soya beans, soya bean cake and soya bean meal, for use exclusively in the manufacture of cattle food and of fertilizers (p. 338, in cwt = hundredweights; 1 cwt = 112 lbs). China was the leading supplier for all four years. In 1933, the peak year, 46,129 cwt were imported worth $57,097. The leading supplier was China (25,491 cwt), followed by the United States (15,899 cwt).

Imports of peanut oil and soya bean oil for the manufacture of soap, and peanut oil for canning fish [grouped together as one, so we cannot tell how much was soya bean oil] (p. 342). The United States was the leading supplier for all four years. In 1929, the peak year, 941,072 gallons were imported worth $652,323. The leading supplier by far was the United States (743,866 gallons), followed by the UK (100,590 gallons) and China (96,616).

Note: This is the earliest document seen (Dec. 2007) concerning soybean products (soy sauce) in Syria. This document contains the earliest date seen for soybean products in Syria (1932); soybeans as such had not yet been reported by that date. Address: Ottawa, Canada.

368. Kirk, L.E. 1934. Division of Forage Plants. *Report of the Dominion Agrostologist* 44 p. For the years 1930 to 1933 inclusive. See p. 39-41.

• ***Summary:*** The section titled “Soybeans” (p. 39-41) begins: “During the past ten years the Division of Forage Plants has introduced and tested hundreds and varieties and strains of soybeans from various parts of the world. Based on these and other tests in practically all of the Branch Experimental Farms the following varieties are considered the best of those available at present for production in Canada.” A table (p. 39) shows the variety name, maturity, and colour of seed of these 7 best varieties: Manitoba Brown, very early, brown. Wisconsin Black, early, black. Mandarin (Ottawa), medium early, yellow. Manchu (Hudson), medium late, yellow (black hilum). O.A.C. No. 211, medium late, yellow. Manchu, late, yellow (black hilum). A.K. (Harrow), very late, yellow (brown hilum).

Each variety is described together with the conditions and areas best suited for its growth. “Manitoba Brown is a semi-dwarf variety. Harvesting of the seed is difficult due to its short length. It is essentially seed type... Mandarin is a seed type rather than a hay type,... In Quebec and the Maritime Provinces, Mandarin can be depended upon to mature only in those sections most favoured with regard to both soil and season... In Ontario, Mandarin, O.A.C. No. 211, Manchu and A.K. are being grown at present. Mandarin matures regularly at Ottawa and is therefore adapted for production over a fairly wide portion of Eastern Ontario... The Prairie Provinces are limited almost entirely to the early maturing varieties, Manitoba Brown and Wisconsin Black... Mandarin has been grown to maturity in southern Manitoba but only under favourable conditions can it be depended upon to produce seed. Both Mandarin and O.A.C. No. 211 have been matured in British Columbia, and it is probable that these varieties may be adapted for seed purposes to certain favoured sections of the province.”

Table 6 (p. 41) shows the yield of different soybean varieties at Ottawa (where Mandarin {Ottawa} gives the highest yield at 30.36 bu/acre with 12% moisture) and Harrow, Ontario, Canada (where Manchu gives the highest yield at 35.99 bu/acre). There is also a section on soybean breeding. Note: This is the earliest document seen (Oct. 2004) that mentions the Mandarin (Ottawa) soybean variety (one of two documents). Address: Ph.D., Dominion

Agrostologist, Canada Dep. of Agriculture, Div. of Forage Plants, Ottawa, Canada.

369. Manchu (Hudson) / Hudson Manchu: New Canadian soybean variety. 1934. Seed color: Yellow, hilum black.
• ***Summary:*** Sources: Dimmock, F.; Kirk, L.E. 1934. "Soybeans." *Canada Department of Agriculture (Ottawa), Pamphlet* No. 155. 18 p. New Series. See p. 11-17. "Based upon results of tests conducted by the Dominion Experimental Farms Branch, the following varieties are considered the best of those available at present for production in Canada." A table (p. 11) lists seven varieties; for each is given the maturity and colour of the seed. One of these is: "Manchu (Hudson), medium late, yellow (black hilum)." This variety also appears in numerous other tables.

MacConkey, C.A. 1935. "Soybeans." Ottawa, Canada: Div. of Research Information, National Research Council, Ottawa. 93 p. March. See p. 59 of this report. "The work being carried out at T.B. Macaulay's experiment farm at Hudson Heights, Quebec, is particularly worthy of mention. Here the testing of varieties has been in progress for 8 years. Mr. Macaulay's method of approaching the problem consists in obtaining samples of hitherto untried varieties from the most northerly regions where soybeans grow and the earliest varieties from Asia and elsewhere... Mr. Macaulay has a new variety which he calls Toyanaga. It matures 5 days to a week earlier than the variety called Manchu, which is being grown to a small extent in southern Ontario."

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 4. "Hudson Manchu–T.B. Macauley [sic, Macaulay] (Canada)."

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 14-15. "Manchu, Hudson" is in the USDA Germplasm Collection. Maturity group: II. Year named or released: by 1939. Developer or sponsor: T.B. Macauley [sic, Macaulay], Montreal, Quebec, Canada. Literature: 13. Source and other information: Selected from 'Manchu'. Prior designation: None. Address: USA.

370. Mandarin (Ottawa) / Ottawa Mandarin: New Canadian soybean variety. 1934. Seed color: Yellow (straw), hilum pale.
• ***Summary:*** Sources: Dimmock, F.; Kirk, L.E. 1934. "Soybeans." *Canada Department of Agriculture (Ottawa), Pamphlet* No. 155. 18 p. New Series. See p. 13-17. A table (p. 11) lists seven varieties; for each is given the maturity and colour of the seed. One of these is: Mandarin (Ottawa), medium early, yellow. This variety also appears in various tables and in two photos on pages 12-15. This is a seed variety, although it can be used for hay.

Kirk, L.E. 1934. "Division of Forage Plants." *Report of the Dominion Agrostologist* 44 p. For the years 1930 to 1933 inclusive. See p. 39-41. A table (p. 39) shows the variety name, maturity, and colour of seed of the 7 best Canadian varieties. One of these is "Mandarin (Ottawa). Maturity: Medium early. Colour of seed: Yellow. Additional details are given on the following pages.

Dimmock, F. 1941. "Canada includes many excellent soybean acres." *Soybean Digest.* May. p. 5. "Ottawa Mandarin is the most commonly grown variety." "An active soybean research program has already resulted in the development of the following varieties: Mandarin (Ottawa), A.K. (Harrow), Kabott and Pagoda by the Dominion Experimental Farms, Dominion Department of Agriculture,..."

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 5. "Mandarin (Ottawa)–Canadian Station selection."

USDA Production and Marketing Administration [Grain Branch]. 1948. "Soybean varieties: Descriptions, synonyms and names of obsolete or old and seldom grown varieties." Washington, DC. 25 p. Aug. See p. 11-12. "Mandarin (Ottawa)–Selection from the Mandarin variety by the Central Experiment Farm, Ottawa, Canada. Maturity, very early; pubescence, gray; flowers, purple; pods, two- to three-seeded; shattering, little; seeds, straw yellow with pale hilum, about 2,500 to the pound; germ, yellow; oil, 18.9 percent; protein, 43.4 percent; iodine number, 133."

USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 16.

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 14-15. Mandarin (Ottawa) is in the USDA Germplasm Collection. Maturity group: 0. Year named or released: by 1920. Developer or sponsor: F. Dimmock, Department of Agriculture, Central Experimental Farm, Ottawa, Ontario, Canada. Literature: 13, 14. Source and other information: Selected from 'Mandarin' in 1929. Also called 'Mandarin' and 'Ottawa Mandarin'. Prior designation: None. Address: USA.

371. Canadian Pacific Railway Co., Dep. of Colonization and Development 1935. Linseed oil. *Agricultural and Industrial Progress in Canada.* 17(2):27-28. Feb.
• ***Summary:*** "The linseed oil industry of Canada has recently been strengthened by the addition of associated products derived from the soy bean. Two or three years ago

[i.e., in about 1932-33] experiments were undertaken in the growing of the soy bean in southwestern Ontario and there are now two plants engaged in the manufacture of soy bean products.

Flax has long been grown in Canada, mainly for the purpose of linseed oil, the largest production coming from the Prairie Provinces. Some flax grown in Canada is, however, of the fibre variety." Canada exports linseed oil but is a net importer of linseed oil cake and oil cake meal. "The Dominion both exports and imports flax seed.

"Soy beans and their products are imported but do not appear in the export returns.

"The production of the Canadian linseed and soy bean oil industry in 1933, according to a report of the Dominion Bureau of Statistics, was valued at $2,086,000. The number of plants in operation was ten and the capital investment $3,022,000.

"Of these ten plants two used soy beans as their raw material, namely, The Canadian Soyabeans Limited of Milton, and the Soybean Oil and Meal Co-operative Company of Canada Limited of Chatham, both in southwestern Ontario." The value of soy-bean oil and meal was no more than $49,071.

Argentina is the leading producer of flaxseed for world trade. "Canada has been one of the three other largest exporters of this product." The peak year for flaxseed acreage and production in Canada was 1912, when 2.021 million acres produced 26.130 million bushels.

"The areas on which soy beans have been grown in Canada are mainly in the southwestern part of the province of Ontario, where in recent years large crops of both tobacco and of sugar beets have also been produced."

372. *Good Health (Battle Creek, Michigan).*1935. The quintuplets are thriving on a biologic diet. 70(3):83. March.
• ***Summary:*** "Very soon after the babies began taking the cultures (soy acidophilus milk) the bowel trouble disappeared and they have since continued to thrive."

373. MacConkey, C.A. 1935. Soybeans. Ottawa, Canada: Div. of Research Information, National Research Council, Ottawa. 93 p. March. 28 cm. [152 ref]
• ***Summary:*** A very important and interesting book. In 1932 the first two sections of this report were prepared; in 1934 the third section was added in order to bring it up to date. Contents: Summary of Part I. Summary of Part II. Summary of Part III. Part I (p. 14): Cultivation, utilization and trade. Introduction. Cultivation: Varieties, differences, maturity, hardiness, color of bean, climate, soil, seeding, harvesting. Production of oil and cake. Applications: Introduction, the plant (forage, hay, pasturage, silage, soilage, straw, soil improvement and fertilizer), the bean (grain, flour, soy sauce, bean curd [tofu], vegetable beans, other uses), the cake (cattle feed, flour, fertilizer, other uses), the oil (general, the soap industry, the paint and varnish industry, the food industry). The soybean industry in the United States: Importance of the crop, history and development (incl. Henry Ford who is said to have 10,000 acres under cultivation), standards (classes of soybeans), production of oil and cake, consumption of soybean oil, export trade in soybeans. Statistics of world trade: Beans (production, exports, imports [statistics, pre-war average {1909-13} + 1926-1931 for Germany, Japan, Denmark, UK and British Empire countries, Dutch East Indies, Sweden, Italy, Formosa, and Holland], consumption [net imports], prices), oil (production, exports, imports, consumption, prices), cake (production, exports and imports). Statistics of the German oil seed industry: Oil seeds in Germany [by far the world's largest soybean importing country and largest European producer of soybean oil] (imports and exports), vegetable oils (production, consumption and value), oil cake and meal (production, imports, exports, consumption and relative values), soybean experiment stations in Germany.

Part II (p. 56): Development in Canada. The difference between growing soybeans for forage and for seed. Present status of soybean cultivation in Canada. The future for soybeans on the Prairies. Extent of Canadian Experimentation. Varieties suitable for Canada. The climates of Manchuria and Canada. Planning the development of soybeans in Canada. Consumption of vegetable oils in Canada by industries. Consumption of oil cakes in Canada. Firms engaged in the soybean industry in Canada. Casein in Canada.

Part III (p. 69): Survey of the Literature, 1931-34. Cultivation. Green manure. Breeding. Germination of seeds. Diseases and parasites. Soil. Manufacture of oil cake. Composition of the soybean. Properties and composition of soybean oil. Feedstuffs. Edible products. Detection in food (e.g. detection of soybeans in wheat flour, pasta, meat products, etc.). Inedible products. Economics. Table (p. 79-80)–Imports of soy products into Canada: Soy sauces (1931-1933), edible peanut and soyabean oil, peanut and soyabean oil for the manufacture of soap and peanut oil for canning fish, soybeans, soyabean cake and soyabean meal for use exclusively in the manufacture of cattle food and of fertilizers. References (102). Other references (Nos. 103-117). References not consulted (35).

The section titled "Development in Canada" (p. 56-62) states: "Soybeans are at present being grown for seed on a commercial scale in southern Ontario, chiefly in Kent and Essex Counties [the Niagara Peninsula]. Prior to 1931 the acreage under soybeans was about 1000 or 1500. The efforts of persons interested in establishing oil mills increased this to about 5000 in 1931 and to 6000 or 7000 in 1932. The average yield of seed has been about 23 bushels per acre, which is quite equal to yields in the U.S., while another variety, the A.K., has yielded at the rate of nearly 40 bushels per acre during a six-year test at Harrow, Ontario."

"T.B. Macaulay, President of the Sun Life Assurance Company of Canada has been experimenting for a number of years on the growing of soybeans in the hopes of being able to make the western farmer more free from his dependence on wheat, and believes that he is near to discovering suitable varieties...

"A statement appearing in the *Montreal Financial Times* (Nov. 18, 1932) reports that a number of varieties introduced from Urbana [Illinois] and tried in various parts of Alberta made an excellent growth of forage...

"The work being carried out at T.B. Macaulay's experiment farm at Hudson Heights, Quebec, is particularly worthy of mention. Here the testing of varieties has been in progress for 8 years. Mr. Macaulay's method of approaching the problem consists in obtaining samples of hitherto untried varieties from the most northerly regions where soybeans grow and the earliest varieties from Asia and elsewhere... Mr. Macaulay has a new variety which he calls Toyanaga. It matures 5 days to a week earlier than the variety called Manchu, which is being grown to a small extent in southern Ontario."

"Varieties suitable for Canada: Besides O.A.C. 211 which is the one outstanding variety that has shown itself suitable for cultivation in Canada albeit only in southern Ontario, a number of other varieties have been tried and experimented with such as Mandarin, Manchu, Wisconsin Black, Quebec 92, Quebec 537, Early Yellow, Early Brown, and Manitoba Brown, but none of these have been very satisfactory."

Table 29 (p. 60) gives a summary of current (1932) Canadian experiments with soybeans: Ontario Agricultural College (Guelph), grown for 39 years (i.e. since 1893), tested 125 varieties. Dominion Experimental Farms (Ottawa and Harrow, Ontario), 9 years, 100 varieties. Macdonald College (Quebec), 20 years, 16 varieties. Manitoba Agricultural College (Winnipeg), 10 years, 12 varieties. University of Alberta, Edmonton, 3 years, 7 varieties. Brooks (Canadian Pacific Railway Irrigation Experimental Station, Alberta), unknown number of years and varieties. Pointe Platin (Quebec, by J. deLothinière [deLothiniere]), unknown number of years and varieties. Hudson Heights (Quebec, by T.B. Macaulay), 8 years, 100 varieties. University of Saskatchewan, 10 years, 25 varieties.

Page 65 lists "Firms Engaged in the Soybean Industry in Canada." The Soy Bean Oil and Meal Co-operative Company of Canada, Ltd., Chatham, Ontario; Canadian Soyabeans Ltd., Milton, Ontario; The Vitone Co., Hamilton, Ontario; Dominion Soya Industries, 355, Place Royale, Montreal, Quebec.

Note 1. This is the earliest document seen (Jan. 2010) that mentions Dominion Soya Industry, Ltd. (Montreal, Quebec, Canada) in connection with soybeans.

Table 33 (p. 67) gives "Consumption of oilseed cake and meal in Canada" for the calendar years 1926 to 1931. Figures (taken from *Trade in Canada)* are given for cottonseed, linseed, palm nut, soya and total. Consumption of soya cake and meal (in tons) were: 200 in 1926 (0.6% of total); 680 in 1927; 560 in 1928; 1,560 in 1929 (5.0% of the total); 1,190 in 1930; and 2,500 in 1931. The value in dollars role from $8,000 in 1926 to about $50,000 in 1931. Apparently all of this soyabean cake and meal was imported.

Note 2. This is the earliest English-language document seen (Dec. 2005) that uses the term "soyabean meal" to refer to ground, defatted soybeans. Address: Div. of Research Information, National Research Council, Canada.

374. Eaton (T.) Co., Limited. 1935. Wake up your appetite! (Ad). *Toronto Daily Star (Canada).* April 23. p. 43.
• ***Summary:*** In the lower right corner of this full-page ad: "Make your own chop suey. It's fun. It's economical. It's good–You can make it with La Choy.

"Vegetables (40¢), Bean sprouts (18¢), water, chestnuts (65¢), Noodles (30¢).

"Serve it with Brown Sauce (35¢) or Soy Sauce (35¢)." Address: College St., Toronto. Phone: AD. 5211.

375. Eaton (T.) Co., Limited. 1935. Buy empire goods at Eaton's (Ad). *Toronto Daily Star (Canada).* May 11. p. 40.
• ***Summary:*** In the section titled "Eaton's for Empire Foods" is a subsection on "Variety for those on restricted diets" which includes: "Cellu Soy Bean Flour, 2-lb. tin 65¢.

"McDowell's Gluten Flour, 5-lb. bag $1.75." Address: College St., Toronto. Phone: TR. 3311.

376. Bowdidge, Elizabeth. 1935. The soya bean: Its history, cultivation (in England), and uses. London: Oxford University Press. xii + 83 p. Foreword by Sir John T. Davies (Director, Ford Motor Co., Ltd.). Illust. 20 cm.
• ***Summary:*** Contents: 1. Introduction. 2. The soya bean in the East: Europe, United States, Canada. 3. Description of the plant: Results of experiments in England, the 1934 experiment in Essex, yields from the four varieties, description of the four varieties, composition of English and other varieties. 4. Culture of the soya bean: Soil requirements, inoculation of the seed, preparation of soil, rates of seeding, sowing seed, cultivation, fertilizers, harvesting the crop, threshing, storage, yields in various countries, soya bean prices. 5. Soya bean hay: Feeding values, time of cutting, soya straw, soya in the mixed crop (in mixed cropping plans with sorghum, maize, etc.). 6. Soya beans for soil improvement. 7. By-products of the soya bean: Oil and its uses, notes on experiments in breeding for oil, methods of extraction, soya cake and meal, results of comparative feeding tests. 8. Food products of the soya bean.

This book describes the successful introduction and cultivation of soybeans in England. The Foreword notes (p.

v): “In past years no sustained effort has been made to grow the plant on a large scale in England. The Royal Agricultural Society devoted several years to experiment at Woburn, but in 1914 they reported that the plant was quite unsuitable for growth in this country as it required more warmth than could be obtained here. The British Board of Agriculture reported in 1916 that ‘the Japanese and Manchurian varieties hitherto tested cannot be relied upon to produce seed in this country.”

In the Preface (p. ix) Ms. Bowdidge acknowledges: “That very able and unique work *The Soybean*, by Messrs. Piper and Morse, has been my principal source of information.”

“Efforts to introduce the [soy] bean to English agriculture were begun in 1909 and given up in 1914, and except for the work of Mr. J.L. North nothing further has been done” (p. 9).

The section titled “Results of experiments in England” (p. 15-17) states: “One of the first attempts to acclimatize the soya bean in England began in 1914 at the Royal Botanic Gardens, Regents Park, when it was shown by Mr. North that certain varieties could be ‘advanced’ sufficiently to produce a mature crop towards the end of September. Many years devoted to careful selection of seed from the varieties in his collection had resulted in several early strains. In 1928, a hybrid was received from Canada which, on passing the experimental stage, was planted out on a number of small plots in various parts of the country. It proved to be a very reliable cropper and matured earlier than any of the sixty varieties previously under test. Planted in the first week in May it was harvested at the beginning of September, and reports of good results came from Middlesex, Essex, Berkshire, Oxfordshire, and Hampshire.

“The largest experimental test ever conducted in this country took place in 1933 at Boreham, Essex, when forty-seven different varieties of the soya bean originating from North America, Canada, Manchuria, and Japan were grown under observation. The selection included four varieties which had been acclimatized by Mr. North. Mr. North was engaged to supervise operations, and 50 lb. of his special seeds was purchased. The results obtained were most interesting.”

“There is no doubt at all that the four varieties acclimatized by Mr. North were a great success; two reached maturity on September 1st and two on September 6th. In many cases plants bearing between 300 and 400 seeds were harvested.”

“It has been found by Mr. North in the course of more than twenty years’ study of the subject, mainly with foreign beans grown in various parts of the country, that no variety of soya bean has any chance of success in England unless it matures in less than 100 days in America. Varieties requiring this length of time in America need nearly a month more in this country and, owing to our colder spring weather, no advantage is gained by earlier sowing. Mr. North’s seeds require 124 to 127 days to reach maturity in England but, if grown in America, they would only require 85 to 90 days.

The section on “The 1934 Experiment in Essex” (p. 17-23) notes: “The result of the 1933 experiment was so encouraging that it was determined that a further attempt should be made in 1934 to ascertain whether it would be possible to grow the plant profitably as a field crop and, with this in view, a field of nearly 20 acres was specially prepared for the acclimatized seeds from the 1933 crop.”

Joseph Bramah, an English engineer, invented the hydraulic press in 1796, leading to a “great advance in the oil-extraction industry.” All “old methods in the western world immediately gave place to the new appliance.” More recently the method of solvent extraction has been developed; it is now used throughout the world and removes nearly all the oil from the seeds (p. 69).

“There is plenty of evidence as to the efficiency of soya meal in live-stock feeding, yet it does not appear to be used in this country as widely as its feeding value merits. The prejudice formed when it was first introduced in England as dairy food seems still to exist. It was thought at that time that the use of the meal might affect the taste of milk and butter; but, although this was disproved later, England remains a small user” (p. 72).

Food products of the soya bean (p. 80-83): “It is unfortunate that the inherent conservatism of English people to anything new has been the cause of past failures to popularize soya bean food products for consumption in this country. The bean contains iron, magnesium, calcium, and other mineral salts; phosphorus in the form of lecithin makes it valuable in cases of nervous disorders...

“Soya ‘sprouts,’ which have been grown and used for centuries in the East, have recently been introduced as a green vegetable. The beans gathered before ripe and prepared in the same manner as green peas are a very satisfactory vegetable and the dried beans, if soaked for forty-eight hours, may be cooked like haricot or butter beans and make a most delicious and nutritious vegetable dish.”

There is no doubt that soybean products are gradually becoming established in Western countries. We sometimes eat soybeans without knowing it. “The bean, when properly prepared by roasting, makes an excellent cereal beverage which looks, smells, and tastes like coffee; a sauce, appropriately seasoned with spices, is the so-called ‘Worcester Sauce’, and soya soups made from the bean taste like beef extract. During the late war, when Germany found herself on the verge of starvation, glutamic acid, produced from the soya bean, was used in German hospitals to form the basis of beef-tea, and it is said that the ground bean also was used at that time for the making of bread. Soya bread,

made from properly prepared flour, is obtainable in England and is stated to be of high nutritive value" (p. 81).

Soya flour has long been used in foods for diabetic persons requiring a low starch diet. "The flour contains more protein and fat, and less carbohydrates than ordinary cereal flours, and a certain variety manufactured in England is stated by the proprietors to contain 42 per cent. protein and 20 per cent. fat, having good keeping qualities, 0.13 per cent lecithin phosphoric acid and the vitamins A, B, D, and E. There are many food products on the London market under the names that conceal their soya bean origin. Just before the late war [World War I] an enterprising English firm was making great strides with soya products. Vegetable butter, biscuits, cocoa, milk chocolates and other confectionery, cream, cakes, bread, &c., proved quite a success until a war-time embargo placed upon the importation of soya beans put a stop to the business; the organizers eventually went to America! (p. 82).

The author concludes (p. 83): "The soya bean is by far the most valuable of all known beans and our farmers ought to make a serious effort to grow it. It has already been shown that the acclimatized bean will grow in this country, and if crops can be raised profitably and on a commercial basis, a service will be rendered both to the farmer himself and to the country."

Excellent photos show (see p. xiii): (1) A typical example of the soya bean plant grown at Boreham, County of Essex, in 1933. (2) The soya bean plant in full maturity. (3) Bags of English acclimatized soya beans harvested on Fordson Estates, Boreham, Essex, in 1933. Left to right: Brown 'C,' yellow 'J,' black 'O,' and green 'Jap.' (4) A sturdy specimen of the 'Jap' soya bean plant grown at Boreham, Essex in 1934. (5) The 'J' variety. (6) The 'O' variety (for hay) at the seed stage. (7) Aerial view of the soya bean field as it appeared on 29 Aug. 1934. (8) Soya beans inoculated the previous day being fed into the horse-drawn drill prior to sowing. (9) A man seated on an ordinary horse-drawn grain-drill, planting soya beans in rows wide enough to enable cultivation later on. (10) Six men stooping in a field, planting small quantities of different varieties of soya beans by hand in 30-inch rows. (11) A man walking beside a horse pulling a cylindrical roller, which helps to give the seeds a better growth and even stand. (12) Harvesting soya beans with a reaper and binder pulled by a tractor. (13) Threshing soya beans in 1934 with a mechanical 'Ruston' Thresher; many beans were split. (14) Loading sacks of soya beans onto an open-bed truck for conveyance to storage barns. (15) The first English rick of soya hay, grown in 1933. (16) Baled and trussed soya bean straw being ricked; a man is shouldering a bale atop the rick with a ladder propped against one side. (17) Heated cakes of crushed soya beans ready for hydraulic pressing at Erith Oil Mills, Ltd. (18) Soya bean cakes, after leaving the press, are passed through a paring machine where the edges are trimmed at Erith Oil Mills. Address: England.

377. **Product Name:** Soybean Oil, Soybean Oil Meal, Dominion Soya Powder (Soybean Flour for Industrial Uses).
**Manufacturer's Name:** Dominion Soya Industries.
**Manufacturer's Address:** 355, Place Royale, Montreal, Quebec, Canada.
**Date of Introduction:** 1935. May.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** C.A. MacConkey. 1935. Soybeans. Ottawa, Ontario, Canada: National Research Council. p. 65. "Firms Engaged in the Soybean Industry in Canada." Dominion Soya Industries, 355, Place Royale, Montreal.

Note 1. This company was incorporated as Dominion Soya Industry Ltd. in Oct. 1935.

F. Dimmock. 1936. "Division of Forage Plants: A report on the present status of the soybean industry, particularly in western Ontario." In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. Appendix "B." p. B-2. "As the centre of soybean production [in Canada] is located in western Ontario, it is only natural that the mills for utilizing the crop should be located there also. The one exception is the plant of the Dominion Soya Industries, 2049 Harvard Avenue, Montreal, Quebec."

Note 2. The company apparently moved to Harvard Avenue from 355 Place Royale, or maybe the plant was in one place and the offices in another. "The plant of the Dominion Soya Industries, Montreal, P.Q. [Quebec], commenced operations in the spring of 1935. This mill uses the solvent process and has a single unit extractor built by the Ford Motor Company. Besides oil and meal, soybean flour is also produced... This plant is now operating and has a capacity of about 100 to 150 bushels of beans a day."

D.L. Calkin. 1936. "Report by Dr. Whitby of interview with Mr. Calkin." In: National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. Appendix "B." p. B-1. This company, now named "Dominion Soya Products Company," originally intended to put in a German plant for the extraction of oil but ultimately decided to put in an inexpensive solvent extraction plant developed by the Ford Motor Co. Aviation gasoline is used as the solvent, but it is not entirely satisfactory, since it leaves an odor in the finished product.

Note 3. This is the earliest known commercial soy product made in Quebec province, Canada.

378. *Toronto Daily Star (Canada).*1935. Report Toronto led industrial program: Exceeded Montreal by $8,000,000–More factories. June 14. p. 18.

• ***Summary:*** "National Soyabean Products Ltd., a new concern, subsidiary of Dr. Jackson Foods Ltd., is installing machinery where it has taken space in the plant at 108 Vine St."

For the second successive year, Toronto has led all other Canadian cities in industrial production–according to the Toronto industrial commission.

379. Holmes, Marie. 1935. Cooking chat: Milk drinking health measure for all the family–Timely recipes. *Toronto Daily Star (Canada).* Aug. 31. p. 13.
• ***Summary:*** Includes: "Question: Would you be kind enough to tell me what is meant by 'anchovies' and 'soy'?"

"Answer: Soy sauce is made from cooked soy beans, roasted wheat flour and salt.

"Anchovies are small fish..."

A small portrait photo shows Marie Holmes.

380. Canadian Pacific Railway Co., Dep. of Colonization and Development 1935. Flaxseed. *Agricultural and Industrial Progress in Canada.* 17(8):121. Aug.
• ***Summary:*** Soybean "products are included in the figure of $91,014 for 'other products.'"

"Soybeans were imported to the amount of 112,460 pounds in 1934, appearing separately in the trade returns for the first time. Imports of edible soybean oil rose from 97,792 gallons in 1933 to 169,358 gallons in 1934; but imports of non-edible soybean oil declined from 148,867 to 20,596 gallons. Imports of soybean meals and cake, on the same comparison, increased from 2,899,200 to 3,799,700 pounds. The soybean trade returns are, it should be added, only roughly comparable as between 1933 and 1934, the basis having been revised in April, 1933."

381. *New York Times.*1935. Soy bean exports start. Cargo leaves Chicago in new rivalry with Orient. Oct. 27. p. 30.
• ***Summary:*** "The steamship Barrie cleared for Montreal yesterday with 47,000 bushels of soy beans–the first export shipment of that crop from Chicago in three years... The shipment, officials said, signalized the development of a new export field. Heretofore European markets have purchased soy beans from Manchukuo, Korea or Japan... American producers are making a bid for European business on the basis of quality, consignors of the first cargo said."

382. *Foreign Crops and Markets (USDA Bureau of Agricultural Economics).*1935. Agriculture in the Canadian trade agreement. 31(22):733-59. Nov. 25. See p. 741, 749.
• ***Summary:*** In a table titled "Canada: Concessions granted to the United States on agricultural products. 1935" (p. 741), one row reads: Commodity: Soybeans. Unit of duty: ad valorum and per lb. Duty in 1929: 25¢ per bushel. Present duty to the United States: 25¢. New duty to the United States: free. Approximate reduction: 100%. Imports from United States, fiscal year ended March 31. 1930: -. 1935: $2,000.

The section titled "Other products" (p. 749) basically repeats the information given in the table.

383. Kellogg, John Harvey. 1935. Re: Growing and canning shell soy beans. Making condensed soy milk and soy acidophilus milk. Letter to Mr. William J. Morse, Bureau of Plant Industry, USDA, Washington, DC, Dec. 9. 3 p. Typed, without signature (carbon copy).
• ***Summary:*** "We have been doing some experimenting this year with growing and canning shell soy beans. I am having a couple of cans sent you so you can see what our product is like. We think it is very fine. The few thousand cans we put up went off like hot cakes.

"We are thinking of doing rather extensive planting this year. We shall not have any seed to sell but may need to buy some more seed.

"Here are some points on which I should like information: 1. Do you know of anyone in this country who is putting up shell soy beans? 2. Are shell soy beans canned in Japan and China, and if so can they be purchased there and brought to this country?..."

"I should also be glad to know if you have other varieties of shell beans of good quality with a growing period of about the same length.

"I am also having sent to you samples of our condensed soy milk. Diluted with two or three times its volume of water, it is, I think you will agree, a very palatable product. We supply this to people who are interested in soy acidophilus milk and willing to take the trouble to make it at home. We supply them with the culture. They simply put the condensed milk into a clean fruit jar, add hot water, let it cool to body temperature and then add the culture and wrap it up in a blanket and set it on the kitchen table and the next day the buttermilk is ready.

"Soy milk produces a much more vigorous growth of the bacillus acidophilus than does cow's milk. The organism is more than twice as large and it grows twice as fast and does not require the long training, 25 to 30 transfers, required when cow's milk is used for the culture medium. In other words, the bacillus acidophilus seems to like vegetable products for a culture medium better than animal.

"I shall be glad to know how you like the milk. If you would like to try making it at home, I will have some more cans and cultures sent to you. The process is so simple any housewife can do it. Slight contamination occurs, of course, but by using a large inoculum this does not matter for the first culture; but a fresh pure culture has to be used every time. If an attempt is made to make a culture from a home made culture it will be likely to fail because of the contamination likely to occur.

"Thanking you in advance for any information you may be able to give me, I remain, dear Sir, Very sincerely yours,

"P.S. Soy acidophilus milk has become so popular at my institution here that dairy milk rarely appears on the table. Everybody likes the soy milk better, and of course when people have been properly informed they want the soy acidophilus milk to change their flora and to get rid of intestinal putrefaction and to encourage bowel action. The effect of the soy acidophilus milk in this particular is very remarkable. In cases of very chronic constipation I have observed complete recovery with two or three normal bowel actions daily.

"The Canadian quintuplets are taking soy acidophilus milk at every feeding and have been doing so since last September when they had an attack of bowel trouble which disappeared as soon as they began taking the soy acidophilus milk which I sent them and have supplied to them ever since.

"I am accumulating evidence to the effect that the soy bean encourages the growth of the protective organisms in the human intestine to a very pronounced degree and by producing acids not only prevents putrefaction but encourages bowel action.

"I think every effort possible ought to be made to spread information among the people respecting the value of the soy bean, which I am sure is some time destined to become one of the most important staple foods in this country as well as in China and Japan.

"Here is another question: One of the difficulties in the way of the soy shell bean business is the expense of picking from the vines and shelling the pods. Do you know of any machinery that is used for either of these purposes?"

Note 1. This is the earliest English-language document seen (June 2009) that uses the term "shell soy beans" to refer to shelled green vegetable soybeans.

Note 2. This is the earliest document seen (June 2009) that mentions machinery or equipment for picking / harvesting or shelling green soybeans in the pods. However it only asks a question about this machinery.

Source: Bentley Historical Library, University of Michigan, Ann Arbor. J.H. Kellogg Collection, Box 2, Correspondence.

384. Dominion Bureau of Statistics, Ottawa, Canada. 1935. Imports of soy products into Canada. *Trade of Canada*. *
• ***Summary:*** Imports of soy sauce to Canada from 1931 to 1933 have increased as follows: 1931: 75,325 gallons worth $34,360; 1932: 78,311 gallons worth $34,625; 1933: 85,737 gallons worth $34,868.

See also imports of peanut and soyabean oil, edible.

Imports of soyabeans, soyabean cake and soyabean meal for use exclusively in the manufacture of cattle food and of fertilizers: 1931: 50,085 cwt [1 cwt = hundredweight = 112 pounds in Canada] worth $23,873 [Canadian dollars]. 1932: 38,393 cwt worth $52,296. 1933: 28,992 cwt worth $49,214. Address: Ottawa, Canada.

385. Sconce, Harvey J. 1936. The soy bean conquers industrial America. *Illinois J. of Commerce* 18(1):16-17, 26, 28, 30, 32. Jan. *
• ***Summary:*** Traces the history of the soybean, and discusses harvesting methods, extraction processes, industrial and food products derived from the beans, the utilization of the bean in the Ford plant, its invasion of the cotton lands, and its adaptability to Tennessee and Canada.

"This is the greatest conquest of territory by a plant in history. Ten years more and it will have revolutionized the industrial manufacturing of America. The soy bean had to come to the United States to get its chance, and it made good."

Note: The author supplied Henry Ford with his first soy beans. Address: Chicago, Illinois.

386. **Product Name:** Soybean Oil, and Soybean Oil Meal.
**Manufacturer's Name:** Soya Mills Limited.
**Manufacturer's Address:** Stratford, ONT, Canada.
**Date of Introduction:** 1936. January.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** F. Dimmock. 1936. "Division of Forage Plants: A report on the present status of the soybean industry, particularly in western Ontario." In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. Appendix "B." p. B-3. "A new mill was established in Stratford, Ontario, during the late fall of 1935 under the name of Soya Mills Limited. Mr. T.D. Bell, Toronto, is the president of this company and Mr. H.P. Trickey [Tricky], vice-president and plant manager. An entirely new and up-to-date mill of the hydraulic press type was brought from England and installed so as to be ready to handle the 1935 crop. About 30,000 bushels of Ontario beans were bought... the mill commenced operating at about the beginning of January 1936." Yet not a pound of product has yet been sold, because the meal contains 10-11% oil rather than the 5% which the feed companies demand. "Mr. Bell, the president, was interviewed in Toronto and stated that in all probability the present mill would have to be taken out and returned to England and the regular type of mill (as recommended in the first place by the manufacturers) installed in its place. It is the intention of the company to go right ahead as the management has every confidence of ultimate success."

387. *Good Health (Battle Creek, Michigan).*1936. Increasing use of the soy bean. 71(2):50-51. Feb.
• ***Summary:*** "Henry Ford has aided in the development of the soy bean industry, having urged the planting as a new opportunity for farmers.

"Manchukuo still produces the world's largest crop of soy beans. The culture of this bean is spreading as people come to know its value for food and many other purposes. Various attempts have been made to grow them in England, Germany, and other parts of Europe with poor success. But the *London Times* records the harvesting of twenty acres of soy beans on the Fordson estate, near Chelmsford [England]. Here Henry Ford has a farm of about two or three thousand acres. His direct interest is due to the fact that he uses this product in his automobile industry.

"Four years ago Dr. Kellogg discovered that milk made from the soy bean made a remarkable culture medium for protective bacteria or so-called 'friendly germs.' In soy milk more than twice the number of these germs can be made to grow than in cow's milk. Remarkable results have been obtained in cases of intestinal disorders through the use of this milk. The Canadian quintuplets are protected against bowel trouble by the constant use of soy acidophilus milk."

388. **Product Name:** "Sunsoy" Whole (Full-Fat) Soybean Flour.
**Manufacturer's Name:** Soy Bean (Sunsoy) Products Ltd. Renamed Sunsoy Products Ltd. in about 1939. Both were subsidiaries of Canadian Breweries Ltd.
**Manufacturer's Address:** Toronto, Ontario, Canada.
**Date of Introduction:** 1936. February.
**Ingredients:** -
**How Stored:** Shelf stable.
**New Product–Documentation:** *Might's Toronto City Directory* 1936. no listing for Sunsoy Products Ltd or Soy Bean (Sunsoy) Products Ltd.

Might's Toronto City Directory 1937. No listing for Sunsoy Products Ltd. BUT when checking the address 367 Sorauren Avenue, we found the following entry: "Murphy Phoenix Products Ltd.

"Park Pulverising Co.

"Soy Bean (Sunsoy) Products Ltd.

In the main section of Might's Toronto City Directory 1937 was the following entry: "Soy Bean (Sunsoy) Products Ltd, Jas M Forgie, pres, F A Park vice-pres, 367 Sorauren Ave. LO 7700" (page 1295).

Might's Toronto City Directory 1938. "Soy Bean (Sunsoy) Products Ltd. Jas M Forgie pres, Frank A Park vice-pres, Fredk E Forster sec-treas, cereals, 58 Fraser av LO 7700" (page 1350).

Might's Toronto City Directory 1939. "Sunsoy Products Ltd. E P Taylor pres, R G McMullen vice-pres, W C Butler sec, J W T Torrance asst sec, H A Taylor treas, W J Packer sales mgr soy bean products, 468 Queen e, EL 9413-5 and EL 7687.

Might's Toronto City Directory 1940. "Sunsoy Products Ltd. E P Taylor pres, R G McMullen vice-pres, W C Butler sec, J W T Torrance asst sec, H A Taylor treas, W J Packer sales mgr, Soy Bean Products, 468 Queen e, EL 9414-4 and EL 7687.

Might's Toronto City Directory 1941. "Sunsoy Products Ltd. Edwd P Taylor, pres, Rob't Fleming vice pres, John W T Torrance sec-treas and manager, Harold C Maedel sales mgr soy bean products, 468 Queen e, EL 9414-4 and EL 7687.

Might's Toronto City Directory 1942. "Sunsoy Products Ltd. Edwd P Taylor pres, Robt Fleming vice-pres, W C Butler sec-treas, P McGregor sales mgr, Harold C Maedel mgr, soy bean products, 468 Queen e, EL 9414-4 and EL 7687.

Might's Toronto City Directory 1943. "Sunsoy Products Limited. Edwd P Taylor pres, Robt Fleming vice-pres, W C Butler sec-treas, I McGregor sales mgr, Harold C Maedel mgr, soy bean products, EL 9414-4 and EL 7687."

Might's Toronto City Directory 1944. "Sunsoy Products Ltd. Edwd P Taylor pres, J F Cosgrave vice-pres, W C Butler sec, H A Taylor treas, H C Maedel mgr, soy bean products 468 Queen e EL 9414-5."

Might's Toronto City Directory 1945. "Sunsoy Products. See Victory Mills Limited."

"Victory Mills Limited. Edward P Taylor President, R W Finlayson Secretary, R G McMullen Treasurer, Main Office and Plant 385 Fleet St, Phone Adelaide 8771, Sunsoy Products Division, 468 Queen East, Phone Elgin 9414" (page 1510).

Note 1. Thanks for all of the above city directory information to Martin Ruddy (5 Jan. 2010) of Reference Services, Client Services Division, Library and Archives Canada, 395 Wellington Street, Ottawa, Ontario, Canada K1A 0N4.

Note 2. Victory Mills, a soybean crushing company, started operations in Nov. 1944 on the Toronto waterfront at 385 Fleet St.; in 1955 it was renamed Victory Soya Mills. It seems from the above that Sunsoy Products Ltd. was transformed into Victory Mills. Both of these soy companies were owned by Canadian Breweries Ltd.

Note 3. We see from the city directory listings above that Sunsoy Products moved within Toronto several times: (1) It was located at 367 Sorauren Avenue from about 1936 to 1937. (2) It was at 58 Fraser Ave. in the 1938 directory. (3) It was at 468 Queen St. East in the directories from 1939 to 1945. Was it simply shut down in 1945?

Note 4. What was Sunsoy's basic activity? Did it buy whole soybeans and crush them to make soybean oil and soybean cake? Or did it buy whole soybeans and grind / mill them to make whole (full-fat) soya flour. We may be able to make an educated guess by looking at a map. (1) 367 Sorauren is in western Toronto, near (but not on) a railway line and about 1,200 meters from the Lake Ontario waterfront. (2) 58 Fraser Ave. is between 367 Sorauren and the waterfront, but it is further from any railway. (3) 468 Queen St. is far to the east of 58 Fraser Ave; it is in Eastern

Toronto, not near any rail line or waterfront. (4) 385 Fleet St. is very near the Toronto Waterfront, just west of Toronto's Inner Harbor, in western Toronto, far to the west of 468 Queen St. The first three locations do not seem well suited for a soybean crusher; the fourth clearly does. Moreover, a soybean crusher, with large, heavy equipment, would be unlikely to move three times in 8-9 years. So we are still left with our basic question: What was Sunsoy's basic business?

389. Sunsoy Products. 1936. Jessie Marie DeBoth demonstrates soy beans at the Star Cooking School: Sunsoy, ready-made breakfast food (Ad). *Toronto Daily Star (Canada).* March 10. p. 26.
• ***Summary:*** In the lower left 1/3 of this large ad is a sort-of sidebar: "Read this: 1. Sunsoy has 3 times the nutritional value of cereals made from ordinary grains. 2. Sunsoy has a minimum Grade A protein content of 36% and is a good substitute for meat. 3. Sunsoy is low in carbohydrates. 4. Sunsoy is a non-starch food. 5. Sunsoy contains vitamins A, B1, B2, D and E. 6. Sunsoy is Definitely an Alkaline Food. 7. Sunsoy is mildly laxative and easily digested. 8. Sunsoy is rich in calcium, phosphorus and iron."

"As an economical source of valuable and wholesome food, Sunsoy has no equal as a cereal. This product combines more concentrated essential food elements than almost any other food known–without a doubt the Soy Bean is destined to become a universal article of food in our diet and in Sunsoy you have the Soy Bean in its purest form."

A large oval illustration shows Jessie Marie DeBoth. A smaller round silhouette illustration at the top of the ad shows a side view of a Chinese peasant with a conical hat and a shoulder pole supporting two baskets.

Note 1. This is the earliest document seen (Dec. 2009) that mentions Sunsoy in Toronto, Ontario, Canada.

Note 2. A similar ad appears on March 11 (the next day, p, 27) but without the illustration of Jessie DeBoth. Address: 367 Sorauren Ave., Toronto. Phone: Lombard 7700.

390. Sunsoy Products. 1936. Sunsoy–Ready-made breakfast food. 367 Sorauren Ave., Toronto, Ontario, Canada.
• ***Summary:*** Ad in *Toronto Daily Star* (Canada). 1936. March 10. p. 26. Jessie Marie DeBoth demonstrates soy beans at the Star Cooking School: Sunsoy, ready-made breakfast food (Ad). "1. Sunsoy has 3 times the nutritional value of cereals made from ordinary grains. 2. Sunsoy has a minimum Grade A protein content of 36% and is a good substitute for meat." "This product combines more concentrated essential food elements than almost any other food known–without a doubt the Soy Bean is destined to become a universal article of food in our diet and in Sunsoy you have the Soy Bean in its purest form." Address: Toronto, Ontario, Canada. Phone: Lombard 7700.

391. *Toronto Daily Star (Canada).*1936. Protest soya bean import. March 14. p. 13.
• ***Summary:*** "Owen Sound, March 14–The council in committee last night decided to protest against putting the soya bean on the free list from the United States. A local industry [company], the Dominion Linseed Co., would be affected."

Note: An ad in this newspaper dated 31 March 1933 (p. 28) shows that Livingston's Blue Highland Flaked Whole Wheat is: "Milled at Owen Sound, Ontario, by The Dominion Linseed Oil Co., Ltd."

392. Kellogg, John Harvey. 1936. Re: Soy Acidophilus Milk and the Dionne quintuplets. Letter to Mr. William J. Morse, Bureau of Plant Industry, USDA, Washington, DC, March 30. 2 p. Typed, without signature (carbon copy).
• ***Summary:*** "We are having great success with our soy acidophilus milk. It cured the [Dionne] quintuplets of serious trouble and keeps them in good health. They have been using it regularly in their daily food for more than a year and a half. Dr. Dafoe writes me that he cannot get along without it. When he stops the use of it the bowels get bad and he has to resume its use at once. I shall be glad to have a liberal sample of this milk sent to you if you would like to try it."

"Sincerely yours,

"P.S. Dr. Miller of China is one of my old students. He sent me a sample of his soy milk powder. It was very fine in appearance, but had a rancid flavor...

"I shall be very glad indeed if you will let me have as much seed as you can of rapid growing vegetable varieties of soy beans. I am planting 150 acres this year, but will be glad to plant 50 more if I can get sufficient seed for the purpose."

Note: This is the earliest document seen (Nov. 2002) concerning the Dionne quintuplets and soy. They were born on 28 May 1934. Dr. Roy A. Dafoe was the attending physician. Address: Miami, Florida.

393. Holmes, Marie. 1936. Cooking chat: The unexpected characteristic of Chinese cookery–soy sauce, native vegetables. *Toronto Daily Star (Canada).* April 2. p. 35.
• ***Summary:*** In Chinese cookery, one finds "chopped meats and the smell everywhere of bean sauce" [soy sauce].

In the average Chinese home kitchen, "Chinese cookery owes much of its savoriness to the bean sauce and native vegetables."

"Soy or bean sauce should be used to flavor soups or main dishes."

One recipe calls for "1 tablespoon Chinese sauce"–apparently referring to soy sauce. A recipe for Chop suey calls for "1 tablespoon Worcestershire sauce." A small portrait photo shows Marie Holmes.

394. Holmes, Marie. 1936. Cooking chat: Luscious chocolate cake beyond dieter's resistance–Topped with frosting. *Toronto Daily Star (Canada).* April 8. p. 35.
• ***Summary:*** Includes a recipe for Chocolate soy cake (with ½ cup soy flour). "The substitution of soy flour changes the texture somewhat, but increases the keeping qualities." A portrait photo shows Marie Holmes.

395. Holmes, Marie. 1936. Cooking chat: Parts of motor car and baby foods made from soy bean. *Toronto Daily Star (Canada).* April 16. p. 34.
• ***Summary:*** A long article, with recipes, focusing on the rise of the soy bean in Canada's public awareness.

"What's all this talk about soy beans? Why are they bursting into headlines, causing heated debates in the House of Commons and revolutionizing the food and industrial world?

"When a product whose name is foreign to most of us becomes the subject of much discussion publicly or privately, we are anxious to know why."

"A small bean, known for thousands of years by the Chinese, is about to become the culture plant of the future. This ancient food with new importance is the soy bean."

The story of the soy bean is a romantic one, for its origin dates back thousands of years to Manchuria and Mongolia [sic], where it is still largely grown today. Henry Ford is discovering new uses for it in the automobile industry. It is used [in the form of fermented soymilk] in the scientific formulas fed to the Dionne quintuplets. As many as 595 products are now made from the soy bean. Several of the 500 varieties of soy beans are now grown in Ontario, and are of high quality.

The soy bean is a rich source of oil, from which many industrial products have been developed, such as soaps, paints, varnishes, printers' ink, linoleum, and artificial leather. This oil is also rich in lecithin, which can be added to dye baths and to finishing solutions for artificial silks and for cotton. Soy bean glue is used to make furniture and plywood from pine trees.

The soy bean is also an excellent source of food, feed, and ammunition. "Dr. A.A. Horvath, probably the greatest chemical authority on the subject of the soy bean says: 'As an economical source of valuable and wholesome dietary elements it probably has no peer."

Pediatricians have found "soy milk" beneficial for feeding infants when mother's milk is not available. Roasted soybeans [soynuts] can be used as a peanut substitute. Flour made from the soy bean can replace part of the wheat flour in cakes, puddings, and breads, and because of its high protein and low starch content, is suited for diabetic and reducing diets. Soy bean cereals are now on the market.

"The hardy Mongolians, giants of strength and stature, have, through the ages, been nourished by the soy bean, the growing of which is the greatest industry of Mongolia [sic, Manchuria].

The soy bean is widely used in Chinese cookery, in forms such as the famous soy sauce. And the soy bean is a rich source of high quality, low cost protein (and minerals)–rivaling that in milk, meat, fish and eggs.

Recipes: Vegetable casserole (with "1 cup soy bean cereal"). Raisin soy muffins (with "1 cup soy bean cereal"). Chocolate soy cake (with "½ cup soy flour"). Health pudding (with "2 tablespoons soy bean cereal"). Soy bean cookies (with "2 cup soy bean cereal").

A large photo, titled "Manufacture of new foods," shows a man (wearing a white lab coat) pouring a ladle of soy beans into the hopper of a mechanical mill.

A small portrait photo shows Marie Holmes.

396. **Product Name:** Soyota (High-Protein Bread Containing Full-Fat Soy Flour).
**Manufacturer's Name:** Moirs Ltd.
**Manufacturer's Address:** Halifax, Nova Scotia, Canada.
**Date of Introduction:** 1936. April.
**Ingredients:** Soybeans.
**New Product–Documentation:** D.L. Calkin. 1936. Report by Mr. F.C. Green of interviews with Mr. D.L. Calkin on April 23 and 24, 1936. In: National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. "Moirs in Halifax [Nova Scotia] are attempting to sell a 10% bread [i.e., one containing 10% soya flour], but this sells at 10 cents and they find it difficult to compete with ordinary loaves selling at 6 cents."

Note 1. According to an ad in the *Toronto Daily Star* (12 Sept. 1927, p. 15) Moirs Ltd. was a well-known maker of chocolates and other candies, located in Halifax, Nova Scotia, Canada.

James L. Doig. 1946. *Soybean Digest.* Jan. p. 16. "Canadian Navy adopts high protein bread." Soyolk full-fat soya flour was made in Britain and sold "to practically every large baking unit between Halifax and Vancouver. From this soy flour Moirs Limited of Halifax, Canada, developed a commercial high-protein bread named Soyota. The ingredients were 98 lb wheat flour, 9 lb high-fat soy flour, 3 lb shortening, 2 lb each sugar and salt, 1 lb 12 oz shortening, 1.5 lb each skimmed milk powder and malt flour, 3 oz. mineral salt, and 62 lb water. Although practically unadvertised, Soyota soon became a good selling bread."

Note 2. This is the earliest known commercial soy product made in Nova Scotia, Canada.

397. National Research Council of Canada. 1936. Proceedings of the First Conference on Soybeans. Ottawa,

Canada. 4 p. Held on 29 April 1936 in the National Research Building, Ottawa, Ontario, Canada. Confidential.
• ***Summary:*** The following people were present: Major-General A.G.L. McNaughton (chairman), Dr. H.D. Chataway, Mr. F.G. Green, Dr. C.Y. Hopkins, Mr. F.E. Lathe, Dr. W. Newton, Dr. G.S. Whitby, Dr. C.A. MacConkey (secretary).

"The chairman explained that the Minister of Finance was desirous of finding alternate crops to wheat to grow in western Canada, and that he was not satisfied with the progress that had been made on the question of soybeans. The meeting had therefore been called to discuss the present situation in respect to the soybean industry in Canada, to consider possibilities for development and the requirements for research in relation to cultivation, to development of new species and to utilization."

Dr. Hopkins proposed that the Minister of Finance should be informed of four factors that mitigate against the economic success of soybean propagation in Canada: (1) Soybeans contain only about 16% of oil, while flaxseed and cottonseed contain 40%; (2) The climate of all but a very small part of Canada is unsuitable; (3) The primary product is the oil-cake or meal, with which Canada is already well supplied; (4) Soybean oil is at a disadvantage in being neither a drying nor a non-drying oil, but intermediate between the two.

The following subjects were also discussed: Potential use of soybean oil in making nonfood industrial products including paints (since it has an iodine number of 117-139), soaps, and foundry molds. Use of protein from soybean meal in plastics and water-proof glues. The results of soybean work by Dr. J.M. Swaine and the Dominion experimental stations/farms in various provinces, the Arlington Experimental Station at Washington, DC, and by Mr. T.B. Macaulay and Mr. de Lotbinière in Canada. The secretary, Dr. MacConkey, agreed to "bring the present list of literature references up to date, particularly in respect to the industrial uses of soybeans." No formal papers were presented. The meeting lasted only 1 hour and 5 minutes. Address: Ottawa, Ontario, Canada.

398. Russell, John. 1936. The culture of the soya bean in England. *J. of the Ministry of Agriculture (Great Britain)* 43(1):24-30. April. [4 ref]
• ***Summary:*** Cultivation of maize and the soya bean in England began at a relatively late date. "Much important work on selection and hybridization of these crops has been done by Professor W. Southworth, formerly of the Manitoba Agricultural College [in Canada], and now of the Rothamsted Experimental Station." Some 30 years ago [about 1906-10] Professor [James] Hendrick tried to grow the soya bean at "Aberdeen [Scotland], using Manchurian seed; in the greenhouse a few plants grew and even flowered, but they never produced seed, while in the open the seeds hardly germinated.

"Further south, at Kingston and Kegworth in the Midlands, Mr. Golding obtained better results with Japanese seed, and indeed he used the plant for some of his pioneering investigations on nitrogen fixation by leguminous plants, working with a culture supplied by Hiltner, then of Munich [Germany]. Although it was useful for laboratory investigations the crop held out little promise to the practical farmer. Similar negative results were obtained by Sir Rowland Biffen at Cambridge. A summary of these tests was given in this Journal in April, 1912 (p.33). A little later in the summer of 1912 and 1913, soya bean was tried at the Woburn experimental farm, but although the seed germinated satisfactorily and the plant grew, as in Mr. Golding's experiments, only a few pools were produced, and it was clear that the varieties tested were useless to this country. Still further south, in the old Royal Botanic Society's Gardens, Regent's Park, Mr. J. L. North, the Curator, was more successful than any of his predecessors: he began in 1914 and within a few years was growing a number of varieties and found some that ripened seed ready for harvesting in September. A brown variety seemed so promising that by 1929 it was taken up for further trial by the National Institute of Agricultural Botany and by Messrs. Sutton and Sons. Meanwhile Mr. North received other varieties from Professor McRostie, of Ontario [Canada], and these were included in his trials-but they all failed.

"This brown variety had been obtained by Professor Southworth about 1916 at the Manitoba Agricultural College, and was fully tested and ready for distribution by 1922. It was a selection from Ogemaw, a hybrid between an early black and a dwarf brown variety produced by E.E. Evans at West Branch, Michigan, in the opening years of the present century. Like all hybrids, it is variable, and Professor Southworth's selection differed in such important respects from the parent material that it was issued as a distinct variety under the name Manitoba Brown. This was sent to Mr. North and grown by him: he described it in the *Quarterly Summary* of the Royal Botanic Gardens, for April, 1929, as having 'in the course of seven years' trials here proved to be not only the most reliable cropper, but the earliest of any of the sixty varieties of soya tested by me for growth in this country for the last fourteen years.' Although Mr. North gives no estimate of yields he quotes Messrs. Chivers' estimate of 12 to 15 cwt. [1 cwt = hundredweight = 112 pounds] of grain per acre, and soya beans sold at that time at £13 per ton. Mr. North states also that the soya bean has been grown successfully in the Home Counties, Oxfordshire, Hampshire and the Channel Islands, but gives no figures of yields in any of these places. The National Institute of Agricultural Botany grew it in 1924, 1925, and 1926 from Mr. North's seed, and each year had a fair crop of seeds: in 1928 large plots were grown and the yield was

estimated at 900 lb. per acre without inoculation and 1,150 lb. per acre with inoculation. The results seemed so promising that half an acre was sown in 1929, but the plants ripened irregularly and produced little seed. The trial was then discontinued."

Mr. North continued his trials and "was fortunate in enlisting the sympathy of Mr. Henry Ford, who in 1932 had purchased some 2,000 acres of agricultural land at Boreham in Essex and proceeded to sow some Michigan varieties of soya bean. These failed, but in the meantime Mr. Ford discovered Mr. North, who furnished him with the above variety and three others, and these have been grown since 1933... Meanwhile in 1932 Professor Southworth, the originator of the most successful of these varieties, had retired from the Manitoba Agricultural College and joined the Rothamsted Staff. He started growing his best selection at the Woburn Experimental Farm... Professor Southworth himself has been growing the crop both at Rothamsted and at Woburn since 1934." Cultures for inoculating soya beans are obtainable from Messrs. Allen and Hanbury, 3 Colts Lane, Bethnal Green, London, E.2.

Note 1. This is the earliest document seen stating that the soya bean was grown at Rothamsted, the world's first agricultural experiment station, established in 1843.

Note 2. This document contains the earliest date seen for soybeans in Scotland, or the cultivation of soybeans in Scotland (About 1906-1910). The source of these soybeans is unknown (One of two documents).

Note 3. This is the earliest document seen (July 2007) concerning soybeans in the Channel Islands, or the cultivation of soybeans in the Channel Islands. This document contains the earliest date seen for soybeans in the Channel Islands, or the cultivation of soybeans in the Channel Islands (April 1936). The source of these soybeans may have been Mr. North. The Channel Islands (incl. Jersey, Guernsey, Alderney, and Stark) are in the English Channel, just west of the northwest tip of France (Manche dept.). Part of the United Kingdom, they were once part of the ancient Dukedom of Normandy (France); today they are domestically independent, not controlled by the British government. The inhabitants are of part Norman descent (French), part English. Here the well-known Jersey and Guernsey breeds of cattle originated. Address: Sir, D.Sc., F.R.S., Director, Rothamsted Experimental Station [England].

399. Barker's Bread Limited. 1936. Which do you prefer of these two popular favorites? (Ad). *Toronto Daily Star (Canada).* May 5. p. 5.
• ***Summary:*** The first of the two favorites is "'Sunsoy' soy bean loaf–An entirely new kind of bread that has won thousands of new customers on taste alone." "Brown 'Sunsoy' 24 oz. loaf 10¢." "Barker's blend of soy bean flour and the finest wheat flour is the secret. Besides assuring wonderful flavor, this blend gives Sunsoy Bread its *alkaline* reaction–its high protein and low starch content–its extra vitamins, lecithin, and mineral salts... and it stays fresh twice as long. Don't wait, try it to-day and see!"

A photo shows a hand holding a bread knife, cutting the loaf into slices. Right below the photo is a box titled "Health facts about Sunsoy Bread (Made only by Barker's)." Seven facts are given, summarizing what is already in the text above.

The second favorite is Barker's Creamy Way Bread, a type of white bread. For home service [delivery] Phone Midway 3511.

Note: This ad also appeared in the issue of May 11 (p. 6). Address: 555 Davenport Rd., Toronto. Phone: MIdway 3511.

400. Holmes, Marie. 1936. Cooking chat: Menus for reducing diets often require modified recipes. *Toronto Daily Star (Canada).* May 9. p. 25.
• ***Summary:*** A recipe for Soy bean and cornmeal muffins contains "½ cup soy bean flour." A small portrait photo shows Marie Holmes.

401. *Agricultor Venezolano (El) (Ministerio de Agricultura y Cria, Caracas).*1936. El cultivo de la "soya" [The cultivation the soybean]. 1(1):24. May. [1 ref. Spa]
• ***Summary:*** A short paragraph at the top of the article states: We have translated the monthly bulletin of the Royal Bank of Canada [actually The Royal Bank of Canada Monthly Letter, April 1936] which discusses the extraordinary importance acquired recently by the soybean, an agricultural product whose cultivation is being tested in Venezuela. The intensification of this crop in our country can come to signify a new and important source of national wealth.

The article begins: "To many people, the soybean has an oriental flavour; they know it as the basic ingredient in some of the most famous English meat sauces [Worcestershire, etc.] and have heard that it is an important Manchurian export. Against this background it is something of a surprise to learn from the *Wall Street Journal* of February 17, 1936, that in the previous year it had become, from the viewpoint of cash return to the farmers, the fourth most important cereal crop in the United States. The crop of 1934 was about 50 per cent larger than that of 1933 and the crop of 1935 was doubled that of 1934."

The many uses of the soybean are discussed, including soybean flour (with and without the original oil content of the seed), soybean milk, butter, cheese [tofu], and coffee. Among industrial uses, in 1934, 10 million lb of soybean oil were used by the paint industry in the USA. "In varnish and lacquers soybean oil is the principal base. The Ford car is finished with a soybean lacquer and the Ford Company is erecting a $5,000,000 plant in Detroit [Michigan] to make

soybean products. In soaps, glues, linoleums and rubber substitutes, the ingredients of the soybean have come to be of predominant importance."

402. **Product Name:** Barker's "Sunsoy" Soy Bean Loaf.
**Manufacturer's Name:** Barker's Bread Limited.
**Manufacturer's Address:** 555 Davenport Rd., Toronto, Ontario, Canada. Phone: Midway 3511.
**Date of Introduction:** 1936. May.
**Ingredients:** Incl. soy bean flour and wheat flour.
**Wt/Vol., Packaging, Price:** 24 oz. loaf retails for 10¢ (Canadian).
**How Stored:** Shelf stable.
**New Product–Documentation:** Ad in *Toronto Daily Star* (Canada). 1936. May 5. p. 5. "Which do you prefer of these two popular favorites?" The first of the two favorites is "'Sunsoy' soy bean loaf–An entirely new kind of bread that has won thousands of new customers on taste alone." "Brown 'Sunsoy' 24 oz. loaf 10¢." "Barker's blend of soy bean flour and the finest wheat flour is the secret. Besides assuring wonderful flavor, this blend gives Sunsoy Bread its *alkaline* reaction–its high protein and low starch content–its extra vitamins, lecithin, and mineral salts... and it stays fresh twice as long. Don't wait, try it to-day and see!"

403. Dimmock, F. 1936. Division of Forage Plants: A report on the present status of the soybean industry, particularly in western Ontario. In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. 18 p. See Appendix B, p. B1-B6. Held on 4 May 1936 in the National Research Building, Ottawa, Ontario, Canada. [4 ref]
• ***Summary:*** An excellent insight into early soybean crushing operations in Canada. "During the year 1935 it has been estimated that approximately 10,000 acres were devoted to soybeans in Canada. This acreage was located almost entirely in western Ontario where the comparatively long, warm season provides excellent conditions for the production of this crop.

"Of the 10,000 acres it is unlikely that more than half of 5,000 acres was harvested for seed. At an average of 20 bushels per acre this would mean a total seed production of about 100,000 bushels. Possibly 50 percent of this quantity will be used for feed and to supply seed for the present season's crop, leaving approximately 50,000 bushels of beans available for disposal for commercial purposes...

"As the centre of soybean production is located in western Ontario, it is only natural that the mills for utilizing the crop should be located there also. The one exception is the plant of the Dominion Soya Industries, 2049 Harvard Avenue, Montreal, Quebec.

"During the fall of 1929 the first oil mill for processing soybeans was established at Milton, Ontario, under the name of the Milton Oil Refineries, Limited. This mill got off to a poor start, and for various reasons such as poor management, poor machinery, and probably poor financing, has never operated with any degree of success. It has changed hands several times but is not operating at present. It uses the hydraulic press method of extraction.

"The next effort to start a mill was made at Chatham, Ontario, in 1932 by a farmer's co-operative under the name of the Soybean Oil and Meal Co-operative Co. of Canada, Limited. Farmers secured membership in the company by the purchase of a share valued at $50 and this gave the purchaser prior rights to sell beans to the company. The number of members was said to have reached from 700 to 800 farmers. Under an agreement with the Archer-Daniels-Midland Company, Milwaukee, Wisconsin, (one of the largest millers of soybeans in the United States), this company installed the machinery and provided a manager, Mr. B.E. Biles, to run the mill. In return for these services the Archer-Daniels-Midland Company was to receive 5 cents for every bushel of beans milled. The mill was of the Anderson expeller type and had a total capacity of about 20 tons of beans a day (24 hours). Unfortunately during the first year of operation the prices of soybean oil and meal dropped to their lowest point, and as a result the price paid for beans was only about 50 cents per bushel. The mill operated at intervals for a few months, but crushed only 22,000 bushels of beans. The first year's results were disappointing to the company and the growers alike.

"In 1933 the price of soybean products rose considerably (meal from $21 to $36.50 per ton) but while the mill handled something over 50,000 bushels of beans the price paid the farmer averaged only 65 to 70 cents per bushel. This continued low price had a very discouraging effect upon the growers and while they continued to produce soybeans they preferred to use them for feeding to livestock rather than sell them to the mill. Much difficulty was encountered in purchasing beans for the mill from the 1934 crop–farmers were beginning to appreciate the value of soybeans for feeding purposes. The price offered, 70 to 75 cents per bushel, brought in very few beans. The final blow came when Mr. Biles, the manager, disappeared with about $7,000 of the company's funds. The plant is now idle and did not open for the 1935 crop.

"The plant of the Dominion Soya Industries, Montreal, P.Q. [Quebec], commenced operations in the spring of 1935. This mill uses the solvent process and has a single unit extractor built by the Ford Motor Company. Besides oil and meal, soybean flour is also produced... This plant is now operating and has a capacity of about 100 to 150 bushels of beans a day. Only about 25 percent of the beans processed during the past year have been of Canadian origin, the remainder having been imported from the United States.

"A new mill was established in Stratford, Ontario, during the late fall of 1935 under the name of Soya Mills Limited. Mr. T.D. Bell, Toronto, is the president of this

company and Mr. H.P. Trickey, vice-president and plant manager. An entirely new and up-to-date mill of the hydraulic press type was brought from England and installed so as to be ready to handle the 1935 crop. About 30,000 bushels of Ontario beans were bought and paid for at 95 cents per bushel f.o.b. Stratford. Additional beans were purchased in the United States. The beans were stored in the plant elevators and the plant commenced operating at about the beginning of January 1936. After the mill had run for some time and several thousand bags of meal had been produced, analysis showed that the press was incapable of extracting the oil below 10 to 11 percent. The feed companies demanded that the meal not carry more than 5 percent of oil. This unfortunate experience has given the company a serious setback. Orders are on hand for every pound of oil and meal that can be produced–oil at 7 to 8 cents per pound and meal at $30.00 per ton by carlots, at the mill–and not a single pound has been sold due to the unsatisfactory nature of the product. Mr. Bell, the president, was interviewed in Toronto and stated that in all probability the present mill would have to be taken out and returned to England and the regular type of mill (as recommended in the first place by the manufacturers) installed in its place. It is the intention of the company to go right ahead as the management has every confidence of ultimate success.

"At Belle River, Ontario, an entirely new mill is now in the course of construction. Mr. James Edgar, of Edgar Sugar House, Detroit, Michigan, is building this plant under the name of the Edgar Soya Products, Limited. The intention is to produce oil, meal and flour. The mill is to consist of two Ford solvent extractors manufactured by the Ford Motor Company... This company intends to contract with growers for acreage. Although no attempt has been made to canvas the farmers contracts for more than 400 acres have already been secured. It is expected that this mill will have no difficulty in obtaining sufficient acreage to provide for its requirements."

"The Dominion Linseed Oil Company plant at Baden, Ontario... is operating a press of the expeller type at this point and is said to have been processing soybeans for 4 to 5 years" [i.e. since about 1931 or 1932]. "Mr. Livingstone, president of the Dominion Linseed Company, was interviewed in Toronto and states that in addition to soybean oil and meal his company is producing soybean flour at its plant in Owen Sound. This flour has been made by a special process and retains the entire oil content of the bean. It is of excellent quality, having been thoroughly tested at the University of Illinois in comparison with other soybean flours of United States origin and declared as equal or better than most of them for cooking purposes. This company is prepared to produce in addition a low oil content flour and plans to do so in the near future. The company is having considerable difficulty in marketing its soybean flour. Mr. Livingston claims that the large wheat milling companies control the bakeries and are strongly opposed to an additional flour being placed on the market, especially when there is any possibility of such flour being used in bread-making. He also claims that before he can definitely establish the value of this flour, both from the standpoint of nutrition and use, it will be necessary to show results that have been obtained in baking tests conducted by an impartial authority, such as the Dominion Department of Agriculture...

"The Christie Brown Company, biscuit manufacturers, Toronto, have been large buyers of soybean flour and have expressed a preference for the Dominion Linseed Oil Company's product over soybean flours which have been previously imported. The price of 6 cents per pound is considerably lower than 9 cents per pound, which was formerly paid for the imported flours."

Tables on page B-5 show that the amount and value of soybeans, soybean oil, and soybean cake or meal imported to Canada have increased dramatically during the past 2 years. For example, during the one year from 1 April 1934 to 31 March 1935 some 4,325 bu of soybeans worth $7,822 were imported. 64% of these soybeans were subject to a tariff totaling $2,488.80. Yet during the 10 months from 1 April 1935 to 31 Jan. 1936 some 12,416 bu of soybeans worth $13,918 were imported. Only 19% of these soybeans were subject to a tariff totaling $2,242.74. "The imports of the last 10 months period represent the product of about 10,000 acres which might easily have been produced in Canada." Note: This is the earliest document seen (Jan. 2005) that gives soybean production statistics for Canada. Address: Div. of Forage Plants, Dominion Experimental Farms.

404. Goldsoy: New Canadian soybean variety. 1936. Seed color: Yellow (buff), hilum yellow.

• ***Summary:*** Sources: National Research Council of Canada. 1936. *Proceedings of the Second Conference on Soybeans.* Ottawa, Canada. 18 p. Held on 4 May 1936 in the National Research Building, Ottawa, Ontario, Canada. See p. 2. Dr. L.E. Kirk talked about the potential for growing soybeans various parts of Canada, including Guelph, where the Ontario Agricultural College has developed and popularized a new variety named Goldsoy.

McRostie, G.P.; Laughland, J. 1940. "Soybeans in Ontario." *Ontario Department of Agriculture, Bulletin* No. 407. 12 p. Feb. See p. 11. Description of varieties: "A high yielding, early maturing variety selected from O.A.C. No. 211 at the Ontario Agricultural College, and is similar to it in description. It may be successfully grown in sections of Ontario having shorter growing seasons."

Dimmock, F. 1941. "Canada includes many excellent soybean acres." *Soybean Digest.* May. p. 5. "An active soybean research program has already resulted in the development of the following varieties:... and O.A.C. 211

and Goldsoy by the Ontario Agricultural College, Guelph." Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 3. "Goldsoy–Ontario Station, Canada."

USDA Production and Marketing Administration [Grain Branch]. 1948. "Soybean varieties: Descriptions, synonyms and names of obsolete or old and seldom grown varieties." Washington, DC. 25 p. Aug. See p. 7. "Goldsoy–Selection from O.A.C. No. 211 by the Ontario Agricultural College, Guelph, Ontario, Canada. Maturity, very early; pubescence, gray; flowers, purple; pods, two- to three-seeded; shattering, medium; seeds, straw yellow with pale hilum, about 2,200 to the pound; germ, yellow; oil, 18.3 percent; protein, 44.0 percent; iodine number, 134."

USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 10.

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 10-11. Goldsoy is in the USDA Germplasm Collection. Maturity group: 0. Year named or released: 1940? Developer or sponsor: Ontario Agricultural College, Guelph, Ontario, Canada. Literature: 13, 14. Source and other information: Selected from 'OAC 211'. Prior designation: None. Address: USA.

405. Kaltenbach, D.; Legros, J. 1936. Soya: Selection, classification of varieties, varieties cultivated in various countries: Canada (Document part). *Monthly Bulletin of Science and Practical Agriculture (International Institute of Agriculture, Rome)* 27(5):175T-80T. May.

• ***Summary:*** "2. Canada. Cultivation of soya is limited almost entirely to the province of Ontario though it is also found in small quantities in New Scotland [Nova Scotia], New Brunswick, the province of Quebec, Manitoba and British Columbia.

"The principal centres of research are: the Central Experiment Farm of the Department of Agriculture of Ottawa; the Experiment Station of Harrow [Ontario]; the Department of Agriculture of the provinces of Ontario and Manitoba.

"During the last ten years, the Forage Plant Service has introduced and tested hundreds of species and varieties of soya from different parts of the world. On the bases of these trials, and others carried out in almost all the Experiment Farms, it may be said that the best varieties now available for cultivation in Canada are the following: -

"Manitoba Brown (Matures very early, brown, obtained by breeding from Ogemaw, semi-dwarf). Wisconsin Black (Matures early, black, much taller than Manitoba Brown, may be grown for both hay and seed). Mandarin (Ottawa; Matures medium early, yellow, grown mainly for seed). Manchu (Hudson; Matures medium late, yellow, hilum black, obtained by breeding from Manchu, very tall, grown for seed and for hay). O.A.C. No. 211 (Matures medium late, yellow, obtained by breeding from Habaro, medium habit of growth, grown for both hay and seed). Manchu (Matures late, yellow, hilum black). A.K. (Harrow; Matures very late, yellow, hilum brown).

"Improvement of varieties has received much attention for some years at Ottawa and Harrow. At Ottawa, in 1931, 460 plants were chosen from among those obtained from several lots of mixed seed harvested in the neighbourhood of Harbin (Manchuria). The descendants of these selected plants were tested in 1932 and 1933...

"The same selection work is carried out at the Harrow Station as at Ottawa, but with varieties which ripen a little later than Mandarin." Address: Rome, Italy.

406. Kaltenbach, D.; Legros, J. 1936. Soya: Selection, classification of varieties, varieties cultivated in various countries. *Monthly Bulletin of Science and Practical Agriculture (International Institute of Agriculture, Rome)* 27(5):165T-89T. May.

• ***Summary:*** Contents: Part 2. IV. Varieties cultivated in the different countries. A. America (continued): United States (conclusion). Principal states of the Union where soya is grown (conclusion: Gives a little history and lists the most popular varieties and how/where grown): Massachusetts, Ohio, Mississippi, Iowa, Maryland, New York, Wisconsin. Canada. Argentina. Bermuda. Brazil. Chile. Colombia. Costa Rica. Cuba. Dominican Republic. Equator [Ecuador], Guadeloupe, Guatemala, British Guiana, Dutch Guiana [Suriname], Mexico, Peru, Porto Rico [Puerto Rico], Salvador, Uruguay.

Varieties grown in Massachusetts (p. 166T): Minsoy, Mandarin, Wisconsin Black, Soysota, Chestnut, Habato, Ito San, Pinpu, Wea, Manchu, Black Eyebrow, Dunfield, Illini, Mansoy, Harbinsoy, Medium Green, Wilson 5 [Wilson-Five], Ilsoy, Peking, Virginia.

Varieties grown in Ohio (p. 167T): Dunfield, Illini, Kingwa, Manchu, Peking, Pekwa, Manchuria, Manchuria 13177, Mukden, Muksen, Mandell.

Varieties grown in Mississippi (p. 169T-172T): Table IV (p. 170T) shows "Production (in bushels per acre) of soya varieties, studied at the Experiment Station of Delta, Stoneville, compared with 5 standard varieties (in 1934). Biloxi, White Biloxi, Coker's 31-15, Coker's 31-9, Delnoshat, Delsta, Dixie, Ebony, Goshen, Kingwa, Laredo (Southern), Lexington, Looney No. 1, Looney No. 2, Looney No. 3, Loxitan, Mamloxi, Mammoth Brown, Mammoth Yellow, Mammoth 01, Mamotan, Mamredo, Manchu, Matthews J.P., Midwest, Otootan, Peking, Sable,

Sable Selection, Tanloxi, Tarheel Black, Tokio, Virginia, George Washington, Wilson.

Varieties grown in Iowa (p. 172T): Hamilton, Black Eyebrow, Dunfield, Midwest, Mansoy, Wilson, Manchu, Illini, Mukden.

Varieties grown in New York (p. 173T): Hamilton, Black Eyebrow, Dunfield, Midwest, Mansoy, Wilson, Ito San, Haberlandt, Illinois 13-19.

Varieties grown in Wisconsin (p. 173T-174T): Black Eyebrow, Early Green, Ito San, Manchu, Midwest. Address: Rome, Italy.

407. Kirk, L.E. 1936. Memorandum on soybeans: Varieties, introduction, selection, breeding, variety testing and other experimental work–of the Division of Forage Plants, Central Experimental Farm, Ottawa. In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. 18 p. See Appendix A, p. A1-A5. Held on 4 May 1936 at the National Research Building, Ottawa. [4 ref]

• ***Summary:*** Contents: Varieties. Introduction. Selection. Breeding. Variety testing. Other experimental work.

Details (including seed color, maturity, and yield) are given on the following soybean varieties produced in Canada in commercial quantities: O.A.C. 211 (by the Ontario Agricultural College), A.K. (Harrow strain), Mandarin (Ottawa strain), Manitoba Brown (or Ogema [Ogemaw]; introduced many years ago from the USA), Wisconsin Black (introduced from Wisconsin), Manchu (Hudson).

"Introduction: Large numbers of soybean introductions have been tested at Harrow since 1923, and at Ottawa since 1928. These have come mainly from Manchuria either directly or indirectly through the United States Department of Agriculture, or Mr. J.L. North, Royal Botanic Gardens, London, England. Others were sent to us by Mr. R.R. Kabalkin of London, England. In some cases we were able to obtain seed samples from districts well to the north of Harbin. Nearly all of our best selections have been made from material introduced directly from Manchuria or that obtained from Mr. J.L. North."

"As the result of an extended trip through Manchuria, occupying two years, Dr. [sic] W.J. Morse, in charge of soybean investigations for the United States Department of Agriculture, brought back about 8,000 seed samples of soybeans. These were grown and classified according to maturity. We were supplied with a complete set comprising the earliest maturity group. Not one of these lots matured as early as our own strains and the great majority did not ripen at all. Nearly all developed a bad attack of Mosaic, which was introduced with the seed. None of the U.S. strains proved to be of any value."

Breeding: "In 1936, about 30 of the best strains will be subjected to a thorough strain test at Ottawa, and at six branch farms, namely, Nappan [Nova Scotia], Fredericton [New Brunswick], Lennoxville [Quebec], Harrow [Ontario], Brandon [Manitoba] and Lethbridge [Alberta]. One very early strain is being increased at Lennoxville, and a majority of them are being multiplied in a small way at Ottawa."

"Variety testing: A standardized test of soybean varieties for seed production, and also for hay production, is conducted each year at Ottawa," at the six branch farms listed above, and at Kentville (Nova Scotia), Morden (Manitoba), Summerland (BC), and Agassiz (BC). "The results of these tests have shown that, with the exception of Ontario, all other provinces require varieties for seed production that are earlier than Mandarin in maturity. The Mandarin variety, however, has produced excellent crops of mature seed in some years in Quebec and the Maritime Provinces; at Brandon, Manitoba, and at Summerland, B.C. Generally speaking, however, there is no yellow seed variety available commercially with a sufficient margin of safety under practical farm conditions to enable the beans to fully mature with reasonable certainty at any of the above places."

Other Experimental Work: "Valuable information on varietal adaptation has been obtained each year from farmers, especially in Quebec and the Maritime Provinces, to whom we have supplied seed for small tests."

Note 2. This is the earliest document seen (June 2009) that contains the term "maturity group." However the meaning is not the same as that which emerged after about 1946. Address: Dominion Agrostologist, Canadian Dep. of Agriculture, Ottawa, Canada.

408. National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. 18 p. Held on 4 May 1936 in the National Research Building, Ottawa, Ontario, Canada. Confidential.

• ***Summary:*** Contents: Minutes. Appendixes: A. Memorandum on soybeans: Varieties, introduction, selection, breeding, variety testing and other experimental work–of the Division of Forage Plants, Central Experimental Farm, Ottawa, by L.E. Kirk (A1-5).

B. A report on the present status of the soybean industry, particularly in western Ontario, by F. Dimmock (B1-6).

C. The soybean (The Royal Bank of Canada, Monthly Letter, April 1936) (C1-2).

In addition to the people present at the first conference on April 29, the following were also present: Dr. L.E. Kirk, Mr. C.H. Robinson, and Dr. J.M. Swaine.

The following subjects were discussed: Dr. Kirk talked about the potential for growing soybeans in Manitoba, Saskatchewan (and the central and northern parts of the other prairie provinces), Nova Scotia, Quebec, the Maritimes, Guelph (where O.A.C. had developed and popularized a new variety named Goldsoy), and the area

around Medicine Hat (in southeast Alberta). "Southern Ontario was the only suitable place in Canada for the industrial growth of soybeans. There was no future for soybeans in Summerland [BC], which had other feed crops. The British Columbia coast, he said, was too wet." Work on soybeans had once been conducted at Macdonald College [Quebec], but had been discontinued. During the last 7 years, the average soybean yield in Canada had been about 25 bushels/acre (range 18 to 30 bu/acre). Dr. Kirk reported that soybeans grown in Ottawa [in northeastern Ontario] had shown consistently higher oil content than those grown at Harrow [at the southwestern tip of Ontario], while the latter had a consistently higher protein content.

"Mr. Robinson stated that fairly complete analyses of the O.A.C. and Mandarin varieties over a period of two years were available and that a chemical study of the oil content of soybeans had been made, but that no report on this had been prepared yet."

Concerning the use of soybean flour to extend wheat flour in foods (such as baked goods): "Dr. Kirk pointed out that a good deal of soybean flour was already being used and that its use was likely to increase..." Dr. Whitby referred to Henry Ford's plant for making plastics from soybeans and the research on industrial utilization being carried out at Urbana, Illinois [by the U.S. Regional Soybean Laboratory]; "industrial outlets looked as though they would be very important." "Dr. Kirk mentioned the recent application of soybeans in the manufacture of ice cream, chocolates, sausages and peanut products." Use of soybeans in feeding animals. Dr. Hopkins was appointed to attend the Second Dearborn Conference of Agriculture, Industry and Science, soon to be held in Michigan; one session was scheduled to be devoted to soybeans. The National Research Council might consider investigations on industrial development of soybeans, being careful not to duplicate the work of Dr. Swaine at the Experimental Farm. The meeting lasted 1 hour and 40 minutes. It was agreed that all discussions and research would be treated as confidential.

See separate entries for each of the 3 Appendixes. Address: Ottawa, Ontario, Canada.

409. The Royal Bank of Canada Monthly Letter, April 1936. 1936. In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. 18 p. See Appendix C, p. C1-C2. Held on 4 May 1936 in the National Research Building, Ottawa, Ontario, Canada. [1 ref]

• ***Summary:*** An overview of the rapid growth of soybeans in the United States, and their potential as a crop in Canada. "To many people, the soybean has an oriental flavour; they know it as the basic ingredient in some of the most famous English meat sauces [Worcestershire, etc.] and have heard that it is an important Manchurian export. Against this background it is something of a surprise to learn from the *Wall Street Journal* of February 17, 1936, that in the previous year it had become, from the viewpoint of cash return to the farmers, the fourth most important cereal crop in the United States. The crop of 1934 was about 50 per cent larger than that of 1933 and the crop of 1935 was doubled that of 1934."

The many uses of the soybean are discussed, including soybean flour (with and without the original oil content of the seed), soybean milk, butter, cheese [tofu], and coffee. Among industrial uses, in 1934, 10 million lb of soybean oil were used by the paint industry in the USA. "In varnish and lacquers soybean oil is the principal base. The Ford car is finished with a soybean lacquer and the Ford Company is erecting a $5,000,000 plant in Detroit [Michigan] to make soybean products. In soaps, glues, linoleums and rubber substitutes, the ingredients of the soybean have come to be of predominant importance."

410. Hokubei Jiji-sha. comp. 1936/10. Hokubei nenkan [The North American Times year book]. Shiatoru [Seattle], Washington: Hokubei Jijisha. [84] + 113 + 324 + 12 p. June 10. Illust. Index. 23 cm. [Jap]

• ***Summary:*** Contents: Black-and-white photographs of Japanese in America with captions on glossy paper, back to back (84 unnumbered pages = 42 unnumbered leaves.). The yearbook (113 p.). The directory (324 p.). Large advertisements (12 unnumbered pages).

This book has the best coverage of companies in Seattle, the rest of Washington state, and Vancouver, BC, Canada.

In the directory, most entries consists of: Company name in English, then in Japanese characters. The address and phone number in English. Address: 215 5th St., Seattle, Washington.

411. **Product Name:** Tofu.
**Manufacturer's Name:** Miyazaki Tofu-ten.
**Manufacturer's Address:** 216 Gore Ave., Vancouver, BC, Canada. Phone: Doug. 4673 L.
**Date of Introduction:** 1936. June.
**New Product–Documentation:** Hokubei Nenkan–The North American Times Year Book. 1936, p. 254. Mr. Haruobei (or Jirobei?) Miyazaki.

412. **Product Name:** Tofu.
**Manufacturer's Name:** Murakami Hatsu Tofu-ten.
**Manufacturer's Address:** 1662 2nd Ave. W., Vancouver, BC, Canada. Phone: Bay. 4575 L.
**Date of Introduction:** 1936. June.
**New Product–Documentation:** Hokubei Nenkan–The North American Times Year Book. 1936, p. 254. Mr. Hatsutaro Murakami.

413. **Product Name:** Tofu.

**Manufacturer's Name:** Murakami Tofu-ten.
**Manufacturer's Address:** 343 5th Ave. W., Vancouver, BC, Canada. Phone: Fair. 3465 L.
**Date of Introduction:** 1936. June.
**New Product–Documentation:** Hokubei Nenkan–The North American Times Year Book. 1936, p. 254. Mr. Ikutaro Murakami.

414. **Product Name:** Tofu.
**Manufacturer's Name:** Tanaka Tofu-ten.
**Manufacturer's Address:** 451 Powell St., Vancouver, BC, Canada. Phone: High 453 R.
**Date of Introduction:** 1936. June.
**New Product–Documentation:** Hokubei Nenkan–The North American Times Year Book. 1936, p. 255. Mr. Ichijiro Tanaka. Note: Another Tanaka Tofu Co. was started in Vancouver at a different address in about 1925. Could the two be related?

415. **Product Name:** Tofu.
**Manufacturer's Name:** Wakabayashi Tofu-ten.
**Manufacturer's Address:** 439½ Powell St., Vancouver, BC, Canada. Phone: High 4067.
**Date of Introduction:** 1936. June.
**New Product–Documentation:** Hokubei Nenkan–The North American Times Year Book. 1936, p. 255. Mr. Chûgorô (or Tadagorô) Wakabayashi.

416. I.D.A. Drug Stores. 1936. Independent Druggists Allied for advertising (Ad). *Toronto Daily Star (Canada).* June 24. p. 10.
• ***Summary:*** At the top middle of this large ad is a sidebar titled "Facts about soap." "The housewife of a hundred years ago learned that by boiling fats with wood ashes a soft yellow soap could be made that greatly aided in the removal of dirt... The Chemist defines soap as a 'Salt of an organic acid.' It is the product of a chemical reaction that may be indicated by this equation: Fats and oils + alkalis -> Soap + glycerin. This represents a process known as 'Saponification."

"Palm oil, cocoanut oil and peanut oil from Africa, Fish oils from Japan, Soya bean oil from China, Cottonseed and corn oil from South America and the United States... each is a variety of oil used in soap making."

Near the top left of the ad we read: "Vi-Tone Food Beverage, 25¢, 45¢, 81¢.

Note: This is the earliest document seen in the *Toronto Star* (Dec. 2009) that mentions "Soya bean oil" (or "Soyabean oil"). Address: Toronto.

417. Simpson's. 1936. Pure food market–Adelaide 8411 (Ad). *Toronto Daily Star (Canada).* June 24. p. 19.
• ***Summary:*** "Biscuits–Christie's Soy-O-Wheat made from Soy Bean Flour, lb. 25¢." Address: Toronto. Phone: ADelaide 8411.

418. Breeding soybeans at Hudson Heights, P.Q. [Quebec]. 1936. In: National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. 34 p. See Appendix F, p. F1-F2. Held on 30 June 1936 in the National Research Building, Ottawa, Ontario, Canada.
• ***Summary:*** Mr. Macaulay presently has about 3 acres devoted to the breeding of soybeans in Quebec. The most promising varieties have come from Russia, Siberia, Washington, DC, and Manchuria. Mr. Macaulay believes that some of his soybeans came from a Russian government experiment station in Siberia, at Blagoveshchensk (latitude 50º); it has a reputation of being very fine. Using strains derived from the Moscow seed (106-110 days), from those believed to come from Blagoveshchensk (perhaps 103 days), and from Mr. William Morse in Washington, DC (112-115 days), he hopes to develop varieties that will mature in about 100 days.

"Hybridization of soybeans is difficult because of the very small size of the flowers, and Mr. Macaulay has done no artificial hybridizing. The soybean is naturally self-fertilizing to the extent of 98 or 98½ per cent; 1½ to 2 per cent of seeds grown naturally are crossed from adjoining plants. Just how this happens is not known definitely, but it is believed to be due to the action of thrips. A number of natural hybrids have been discovered in his rows and some of these are very promising. The best are believed to be hybrids between Manitoba Brown (100 days) and the Moscow strains."

"Mr. Macaulay paid emphatic and generous tribute to the work of Mr. Dimmock at the Central Experimental Farm at Ottawa [in Ontario province, Canada]. Beginning with artificial hybrids made between the Manitoba Brown and Mandarin, Mr. Dimmock has now developed from these hybrids strains of yellow beans that are highly promising."

"Mr. Macaulay is not hopeful at present of the possibility that either at Ottawa or at his farm strains earlier than Manitoba Brown will be developed. Present indications are that a growth period of about 100 days is the minimum necessary for the plant.

"The soy bean plant also has a great future for use as hay, the more vigorous types being preferred for this purpose. The soybean may thus have a value considerably further north than the area in which it will be able to be successfully grown for grain purposes."

419. Calkin, D.L. 1936. Report by Dr. Whitby of interview with Mr. D.L. Calkin of the Dominion Soya Products Company, Montreal. In: National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. 34 p. See Appendix B, p. B1-

B10. Held on 30 June 1936 in the National Research Building, Ottawa, Ontario, Canada. [2 ref]

• ***Summary:*** Note: In several subsequent interviews in this report, the company name is given as Dominion Soya Industries Limited. Based on a phone conversation of 24 April 1936. Dominion Soya Products Co. uses an inexpensive solvent extraction plant developed by the Ford Motor Co. Aviation gasoline is used as the solvent, but it is not entirely satisfactory, since it leaves an odor in the finished product. Most of the plants processing soya beans in Canada are apparently using solvent extraction. Exceptions are (1) Soya Mills Co. (Mr. Tricky) [sic, Trickey; at Stratford, Ontario], using English-built oil expeller equipment, and (2) Dominion Linseed Oil Company, making whole-oil flour.

Soybean oil: The chief outlets for soya bean oil are to the paint manufacturers and the packers (including Canada Packers), which use it for the production of shortening, or of a refined, bland salad or cooking oil. "It is understood that the Ford Motor Company is now using soya bean oil exclusively for its car enamels."

Soybean flour: The Ford Motor Co., in co-operation with the Bakelite Co., has developed a successful plastic from soya bean meal. Soya bean flour is being used in England for making sausages; it is claimed to have the advantage of holding the meat juices and of acting as an antioxidant (preventing rancidity). Dr. Rabinovitch of Montreal is in favor of using soy "flour in sausages, especially in the low-grade type known as 'hot dogs.' Dr. Rabinovitch on his trip to the north last summer took considerable quantities of soya bean flour and oil for use of the Eskimo. Canada Packers think well of its use in sausages... Brown of Bradley Foulds in England used soya flour for finishing light textiles with good results, but found that in the case of heavy goods and finishes the flour tends to produce a slimy feel on the goods. Experiments on the use of soya flour in water paints were made by the Sherwin-Williams Co., Montreal. The objection was raised, however, that the solutions stank. In experiments in England in this connection the chief point stressed was the difficulty of getting the flour into solution... Experiments are in progress in Canada on the use of soya flour in the manufacture of explosives, presumably after nitration. Soya bean flour used as a glue in the manufacture of plywood from soft wood has the advantage of being more waterproof than any other glue known. On account of this property it was used for all walls and floors exposed to the weather at the Century of Progress Exhibition in Chicago [Illinois]. Soya bean glue is being made in Canada by the Hercules Glue Company and a small quantity by the Bulldog Grip Cement Co."

"Mr. Calkin's experience with Ontario beans has been that they have often been contaminated with shells, small stones, clay, etc. Furthermore, U.S. beans could be bought for 90¢–$1.00 a bushel at a time when $1.50 was being asked for Ontario Beans.

"The Co-operative Soya Bean plant in Ontario (at Milton) in which the Archer Daniels Midland Company is also interested is not now apparently operating. It appears that the secretary of the Co-operative decamped with the funds."

Also describes (p. B5-10) several experiments conducted by J.B. Phillips, MSc, PhD (July 1933 in Montreal) on "beating experiments with sulphite pulp and soya flour" using Dominion Soya Powder as a filler and size for paper. And "Utilization of Dominion Soya in coatings for papers." Address: Dominion Soya Products Company, Montreal, Quebec, Canada.

420. Calkin, D.L. 1936. Report by Mr. F.C. Green of interviews with Mr. D.L. Calkin on April 23 and 24, 1936. In: National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. 34 p. See Appendix C, p. C1-C2. Held on 30 June 1936 in the National Research Building, Ottawa, Ontario, Canada.

• ***Summary:*** Dominion Soya Industries Ltd. [called Dominion Soya Products Co. in another interview in this document] operates a Ford-type solvent extraction plant with a capacity of 2½ tons of soybean per day. The solvent is high test or aviation gas. The company originally imported soya flour from Germany.

"Soya flour with wheat flour: One company in the West failed to market a health bread containing about 10% or more of Soya flour. Moirs in Halifax [Nova Scotia] are attempting to sell a 10% bread, but this sells at 10 cents and they find it difficult to compete with ordinary loaves selling at 6 cents.

"Using about 2% soya flour is a different matter. While there is added cost, this is overcome by ability of soya flour to carry extra moisture through oven and 4% water (or twice weight of soya flour may be added). These loaves do not stale as rapidly. Some bakers are quite won over to this use of the flour–others are not impressed. In cakes, the use of soya flour may cut down eggs required, but this is of greater interest to commercial bakers than to housewives. Recipes would require some modification with probable larger amounts of liquids and baking powder.

"Mr. Calkin did not believe that much sale could be found for packaged flour until there was greater common knowledge of its uses and value. Eatons in Montreal sell some at 65 cents per lb. in their special diet section. Some uses for flour are in bread, cakes, pancakes, muffins, soup and sauce thickening, etc." Address: Dominion Soya Industries Ltd., 2049 Harvard Ave., Montreal, Quebec, Canada.

421. Calkin, D.L. 1936. Statement by Mr. Calkin. In: National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. 34 p. See Appendix G, p. G1-G4. Held on 30 June 1936 in the National Research Building, Ottawa, Ontario, Canada. [2 ref]

• ***Summary:*** Mr. Calkin has done considerable pioneering work in an attempt to introduce soya flour to industrial concerns in Great Britain, especially for use as a sizing in making paper, in adhesives, and in plastics. The product is named Dominion Soya Powder (oil and starch freed, technical). The results were mixed. Address: Dominion Soya Industries Ltd., 2049 Harvard Ave., Montreal, Quebec, Canada.

422. Green, F.G. 1936. Meeting with Mr. Calkin of Dominion Soya Industries Limited, July 24, 1936. In: National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. 34 p. See Appendix H, p. H1-H3. Held on 30 June 1936 in the National Research Building, Ottawa, Ontario, Canada. [2 ref]

• ***Summary:*** Dr. Chataway, Dr. Hopkins, and Dr. Malloch met with Mr. Malkin in Mr. Green's office. Mr. Calkin's plant in Montreal had not resumed operation, but the company's "sales of soya flour were increasing to a very gratifying extent. One firm alone in Montreal is taking one ton weekly and may double this amount while a sale of about one hundred tons had been arranged in Great Britain. They had just taken on a master baker–a Mr. Doig–who had previously worked on the introduction of Best Yeast. With a thorough understanding of the baking trade and problems, Mr. Doig had, in the week or so he had been with them, been able to secure trial orders from many firms. At first a general discussion of milling equipment took place."

Although soya flour costs more than wheat flour, Mr. Calkin feels that it more than "this was almost entirely made up for by the extra amount of water which the soya flour carries through the oven. The slower staling attained was a decided advantage and would, he believed, result in increased bread consumption. While there was very little positive proof of this to date, he referred to one baker in Vankleek Hill whose bread sales had increased by 20%. In loaves of the French type, soya flour gave a crust that was of better flavor and less rubbery. "Some whole meal [soya] flour was being sold at 9 cents, but not by his firm. The chief selling point of this latter flour was that less shortening was required." Another use for flour was in cake icing.

"Oil so far produced in Canada has not been refined prior to sale. It is easy to decolourize the oil but more difficult to deodorize it. For paint use it is decoloured. Sherwin-Williams do this at their own plant using Frankonite sold by Chapman of Toronto [Ontario province]. Crude oil can be sold for paint or shortening for 6½–7½ cents per lb. Canada Linseed had investigated the possibility of putting in a soya bean extraction plant but decided against it because, while their interest lay primarily in oil production, it would be necessary for them to market the 75% residue besides making allowance for the 10% processing loss. Dominion Linseed is putting whole meal [soya] flour on the market."

"Mr. Calkin did not think that the recovery of lecithin was of immediate importance to the industry although it might well become so later."

Some soya flour had been sent to Erinoid Limited of England. Standards and solvents were also discussed. The aviation spirits in solvents were unsatisfactory and could be detected by consumers in cooked products. Mr. Calkin "mentioned that they were required to charge sales tax on the flour sold to bakers whereas no sales tax is charged on wheat flour sold to them." Address: Dominion Soya Industries Ltd., 2049 Harvard Ave., Montreal, Quebec, Canada.

423. Hopkins, C.Y. 1936. Report on Dearborn Conference of Agriculture, Industry & Science, Detroit, May 12-14, 1936. In: National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. 34 p. See Appendix D, p. D1-D4. Held on 30 June 1936 in the National Research Building, Ottawa, Ontario, Canada.

• ***Summary:*** In this Report (No. C35-368) the author gives his general impressions of the conference (which hindsight shows to be quite inaccurate or short-sighted), summarizes papers that were presented, and describes in detail his visit to the Soybean Extraction Plant at the Edison Institute in Greenfield Village [Dearborn, Michigan]. Address: National Research Laboratories, Div. of Chemistry, Canada.

424. Kaltenbach, D.; Legros, J. 1936. Soya: Selection, classification of varieties, varieties cultivated in various countries: Western Europe (Document part). *Monthly Bulletin of Science and Practical Agriculture (International Institute of Agriculture, Rome)* 27(6):216T-28T. June.

• ***Summary:*** "1. Germany. In spite of numerous attempts extending over a long period of time, and particularly since 1920, soya cultivation in Germany has remained in the experimental stage. From a practical standpoint it cannot be said that economic cultivation of soya exists...

"All the varieties introduced for trial have failed as they were not adaptable to the climatic conditions of the country. Certain growers, however, (Schurig at Stedten; Brandt at Gierdorf; Heinemann; Winkler, etc.) and several professors of State Institutions (Professor Riede of the Bonn University; Professor Sessous of the Giessen University; Professor Berkner of the Breslau University; Dr. Heinze of the Chamber of Agriculture of Halle) have carried out

breeding work and have obtained lines superior to the varieties which were used as the point of departure. These lines are at present being tested in various regions in Germany.

"Several varieties have been obtained by the botanical station of the Higher School of Agriculture of Bonn-Poppelsdorf:

"Yield per hectare of Bonn 373 is 20.9, and yield per hectare of Bonn 456 is 19.1.

"2. Austria. Soya cultivation was introduced in 1870 by F. Haberlandt. Since that time breeding work and tests in acclimatisation have been carried out at various times. The most important work of this kind was started in 1923 by Dr. Fritz Drahorad and his assistant M.F. Brillmayr [Brillmayer]. Trials were made with 28 varieties in various parts of the country and the results centralized at Platt (Lower Austria) at the Leguminous Plant Breeding Station dependent from the Federal Station of Plant Cultivation and Seed Selection. In this way early varieties were bred at Platt with a growth period of 110-125 days.

"The principal varieties bred are: Platter Schwarze Soja, Platter Kleine Gelbe Soja, Platter Gelbe Riesen.

"In Austria the only varieties that may be cultivated with success are those selected in the country which have a growth period of from 130 to 145 days at the most.

"3. France. Soya was introduced into the Botanical Garden at Versailles in 1740. Several trials in cultivation have been made since 1855. L. Rouest in Aude and Charles de Carbonnières, in Tarn, carried out test of some importance from 1918 to 1925. But it was not until 1932 that the first scientific investigations were made on the possibilities of acclimatising soya in France. These researches were carried out chiefly by M.H. de Guerpel, in Basse-Normandie. The results obtained in the first year were so encouraging that it was decided to sow 5 hectares of soya in ten communes in Normandy, the principal being: Cagny, Saint-André-sur-Orne, Vieux-Fumé, Percy-en-Auge, Villons-le-Buissons, Saint-Contest, Beny-sur-Mer. The seed was taken both from the harvest of the previous year and also from seed from Poland... Yields varied from 1400 to 1800 kg per hectare.

"Another trial was made with a variety with yellow seed from Manchuria.

"In 1934 trials were made in the Department of Eure with the variety Tokio with black seeds.

"4. Great Britain (and Colonies). One of the first tests in acclimatisation of soya in Great Britain took place at the Royal Botanical Garden, Regents Park, in 1914. During these tests Mr. North found that certain varieties were sufficiently early to mature at the end of September. By careful selection with these varieties for several years lines were obtained which were particularly early. In 1928, a hybrid was introduced from Canada which proved to be earlier than any of the 60 varieties tested up to that time. By sowing the seed the first week in May it was possible to harvest the beginning of September. Good results were obtained in Middlesex, Essex, Berkshire, Oxfordshire and Hampshire.

"The most important researches were made at Boreham in Essex in 1933 where 47 varieties were grown originating from North America, Canada, Manchuria and Japan. Trials were also made with the varieties already bred by Mr. North. Interesting results were obtained.

"The investigations were continued in 1934 with the 4 best varieties acclimatised, known as Jap, 'C,' 'O,' and 'J.'

"6. Italy. Sporadic trials in soya growing were made in Italy from 1740 to 1880, but it was chiefly at the beginning of this century that an attempt was made to introduce this crop into the national economy. Soya has been the object of patient and continuous research at the Bonafous Institute in Turin, where two varieties were selected, well adapted to the region, one with yellow and the other with green seeds, large and spherical in shape. In the district of Spoleto, the Marquis G. Marignoli obtained good results, in 1926, with this plant and is of the opinion that soya cultivation for seed production would be completely successful in Puglia and the South. He found that the American variety Mammoth Yellow is easily acclimatised in Central Italy and he has undertaken mass selection of this variety which is of great importance on account of its precocity and yields. In respect of forage production, he has successfully experimented with a variety with green seeds which, owing to its great development, is doubtless the same as the variety that gave good results in Piedmont. According to information received from the Director of the Travelling Chair of Agriculture of Cagliari, similar trials have been made in the Sanluri farm and certain other private farms. In 1928, a Yellow Japanese variety gave 3.3 quintals of seed per hectare at Sanluri. This same variety, grown at Santa Margherita di Pula, only gave 2.3 quintals. At Simacis, in 1919, a light coloured variety of soya yielded 3 quintals per hectare. In the experimental plots of the Faculty of Agriculture of the Perugia University, small trials have been made with 4 varieties of soya which had already been tried and selected before the war by Professor Bottari at the Bonafous Agricultural Institute. Note: 1 quintal = 100 kg.

"Soya was grown for the first time at the Agricultural Station of Bari in 1921. Seeds obtained from Professor Borzi were used. This variety proved to be very productive, but rather late. In the following years Professor Pantanelli, Director of the Station, procured 45 varieties from the United States and India.

"7. Netherlands. Soya growing is not widespread in the Netherlands and only small trials in acclimatisation are carried out. It is not yet known whether soya can be grown on a remunerative basis in the humid climatic conditions of this country.

"10. Switzerland. The first trials in soya growing in Switzerland date back to the time of the Universal Exhibition of Vienna in 1873, in fact, a great quantity of soya seeds belonging to different Manchu varieties were shown. In 1878, Professor Haberlandt, who had carried out cultivation trials in various countries in Europe, made a few tests in the town of Coire [Chur]. A little later, Professor Kraemer made a few trials in Zurich for three years and published a pamphlet in 1880 giving the results obtained. In practice, soya growing had not developed and it is only recently that further efforts in soya cultivation have been made.

"At present trials are carried out solely by the Establishment of Agricultural Research of Oerlikon-Zurich, foreign varieties being the principal object of study. There are no native Swiss varieties. The first varieties tried were those obtained by the German breeder Dieckmann at Hamburg. Late an Austrian variety was introduced: Platter Gelbe Riesen, and a whole series of American varieties obtained from Professor Wiggans of the Cornell University, Ithaca. Finally, 3 Polish varieties from Vilna were introduced which, it appears, came from the Botanical Garden of Basle [Basel, Switzerland]...

"*Soya grown for seed:* There are also wide variations in seed yields. With the 22 varieties tested in 1935, they varied from 1.5 to 16.5 quintals per hectare.

"In Switzerland, forage production is the principal object of soya growing. There are, however, factories which are interested in soya for the production of foods for persons suffering from diabetes. Local production of soya cannot compete with the present imports from abroad." Address: Rome, Italy.

425. Kaltenbach, D.; Legros, J. 1936. Soya: Selection, classification of varieties, varieties cultivated in various countries: Eastern Europe (Document part). *Monthly Bulletin of Science and Practical Agriculture (International Institute of Agriculture, Rome)* 27(6):221T-33T. June.
• ***Summary:*** "5. Hungary. Since 1870-1880 several attempts have been made to introduce soya cultivation into Hungary, but, although climatic conditions and particularly the temperature are more favourable than in Germany, it has not been possible, up to the present, to develop this cultivation. Soya is only grown to supply the forage requirements in farms and is used solely for feeding live-stock (pigs, dairy cows). This check on soya growing on a commercial scale is due partly to the fact that up to the last few years, no early varieties with a high yield were available and partly owing to the fact that soya could not be sold at a price remunerative to the producer. [Note 1. The source of this 1870 date is unknown].

"Trials in cultivation are carried out at the Royal Hungarian Station for Plant Cultivation at Magyarovar and questions relative to feeding live-stock are studied at the Station of Animal Physiology at Budapest.

"8. Poland. The first attempts to introduce soya into Poland date back to the end of the 19th century. These attempts were not crowned with success and were abandoned until 1923... Varieties grown in the Trial Garden of the Vilna University (U.S.B.): Brown Vilna soya, brown Szlotenice soya, brown Dublany soya, yellow C.S.S. soya, yellow Canadian soya from Montreal, yellow Canadian soya (Quebec 92), yellow Podolia soya, black soya (Granum 4041), black soya.

"It may be concluded that the soya varieties of Vilna, Szlztenice and Dublany may be grown in the whole of Poland as they are early and can mature even in the province of Vilna.

"9. Rumania [Romania]. Soya growing was introduced in 1910-13. The principal research centrés are the Phytotechnical Station of the Institute of Agronomical Research of Rumania, Budapest, and the various regional experiment Stations of the Institute: Baraganul (district of Ilomutsa); Valul lui Traian (district of Constantsa); Cenad (district of Timis); Tighina (district of Tighina); Agricultural School of Medias (district of Tarnava-Mare).

"At present the following varieties are cultivated: Platter gelbe–Braun gelbe I and II–Platter Riesen–Black Eyebrow–R.E.A.Z.–Ossyek. Varieties rich in oil are sought for. Harvesting takes place in August and September. Yields in seeds vary from 7 to 18 quintals per hectare. Note 2. 1 quintal = 100 kg.

"11. Czechoslovakia. "Trials in acclimatisation of soya in Czechoslovakia are carried out with non-improved foreign varieties and varieties improved in the country. Results show that the most suitable varieties are those with yellow seeds obtained from M. Frankel at Siarovicia and, for Moravia, the selected Austrian Platt varieties.

"The improved varieties of Czechoslovakia were bred by F.A. Brillmayr of the Osterreichisch Bundesanstalt für Pflanzenbau and Pflanzenzuechtung (Federal Plant Cultivation and Selection Station, Platt, South Austria). They are known under the general name of 'Plattske.' The cultivation of selected Austrian varieties was introduced into Czechoslovakia by Dr. Hanreich at Vlasatici, near Pohorelic (Moravia)... These varieties came from the State Agricultural Trial Station at Roudnice.

"13. U.S.S.R. It is only a few years ago that the U.S.S.R. contemplated soya growing from an economic standpoint. Up to 1927, this plant was of little importance in the economy of the country. Just before the Revolution, soya crops occupied 4,000 hectares. The best regions for this cultivation are the northern parts of the Caucases [Caucasus]: Transcaucasia, the Ukrain [Ukraine] and districts on the Pacific Ocean (province of Primorskaja). These are the best seed producing regions. In addition, soya

may be grown for forage also in the northern regions where maturation is not always regular or sure...

"All the land suitable for soya growing is distributed into 5 zones and subzones according to the possibility of successful cultivation...

"Varieties: Amour 01, Besentchuk No. 8, Chestnut, Dronsag soja No. 905, Dronsag soja No. 907, Dunfield, Ebony, Gounciulin, Habarovsk (Habaro) No. 109, Harbin No. 19, Harbin No. 118, Harbin No. 199, Harbin No. 199-b, Harbin No. 231-a, Hollybrook, Illini, Krouchoula No. 9/3, Krouchoula No. 10/10, Manchu, Mandarin, Mansoy, Minsoy, Peking, Stavropol Local, Transcaucasian, Old Ukrain [sic, Ukraine], Virginia, Wilson, Wisconsin Black." Address: Rome, Italy.

426. MacConkey, C.A. 1936. Experimental cultivation of soybeans: Information obtained through inquiries. In: National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. 34 p. See Appendix E, p. E1-E2. Held on 30 June 1936 in the National Research Building, Ottawa, Ontario, Canada.
• ***Summary:*** The author sent a letter of inquiry to 5 universities or colleges, and to several individuals and organizations in Canada, and visited Mr. T.B. Macaulay, Hudson Heights, Quebec. "At Edmonton [Univ. of Alberta] a few varieties have been grown each year since 1930, with nothing of promise resulting.

"In Manitoba [Univ. of Manitoba, Winnipeg] soybeans have been grown for 15 years [i.e. since 1921]. By hybridization a yellow-seeded variety suitable for southern sections of western Canada has been obtained and it is believed that by large-scale operations on inexpensive land, a profitable crop may soon be grown."

"At Saskatoon [Univ. of Saskatchewan] a few varieties were grown in 1925 and 1926 and a dark-seeded variety is at present being tried. No results of promise are reported.

"At Guelph [Ontario] over a hundred varieties have been tested in the last 43 years [i.e. since 1893]. Selected varieties have been successfully established in this part of Canada. In 1929 an extensive soybean demonstration including every county in the province was organized. Co-operative tests have been carried out on hundreds of farms and information obtained regarding times and rates of seeding, methods of planting, harvesting and so forth. This work is being continued.

"At Platon, Quebec, Mr. A.J. de Lotbinière has grown a few varieties during the last 4 or 5 years. Strains satisfactory for fodder purposes have been developed by selection and a great future is foreseen for the soybean here.

"At Brooks, Alberta, a few varieties have been grown by Mr. Don. H. Bark, of the C.P.R. [Canadian Pacific Railway], since 1922. Earliness was considerably increased by selection but little of promise resulted. Mr. Bark died in 1935 and no information is available as to what has been done since then.

"At Hudson Heights, Quebec, Mr. T.B. Macaulay has been breeding soybeans for a number of years. This work is of considerable importance and a report is given in Appendix F.

"At Macdonald College [Quebec] a few varieties have been grown since 1906. Two varieties have been selected and named, one is suitable for the production of grain, the other is more suitable for fodder."

Note 1. This document contains the earliest date seen for soybeans in Alberta province, Canada, or the cultivation of soybeans in Alberta province (1922, by Mr. Don H. Bark of the C.P.R. at Brooks). The source of these soybeans is unknown; it may have been the Ottawa Research Station, Ontario, Canada. Note 2. As of Feb. 1993 the archives of the Canadian Pacific Railway are located at: Canadian Pacific Ltd., Windsor Station, P.O. Box 6042–Station A, Montreal, QUE H3C 3E4, Canada. Phone: 514-395-5146. However a careful search by the archivists uncovered no early documents related to soybeans in Alberta. They did find a 1919 publication by Don H. Bark titled "Profitable Irrigation Crops," which mentions alfalfa and field peas, but not soybeans.

427. Malloch, J.G. 1936. Soybean milling and baking. In: National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. 34 p. See Appendix A, p. A1-A2. Held on 30 June 1936 in the National Research Building, Ottawa, Ontario, Canada. [2 ref]
• ***Summary:*** The author is in the early stages of learning how to crush soybeans. "The soybean flour has not yet been received from Dr. Kirk, so no baking experiments have been undertaken." Address: Canada.

428. National Research Council of Canada. 1936. Proceedings of the Third Conference on Soybeans. Ottawa, Canada. 34 p. Held on 30 June 1936 in the National Research Building, Ottawa, Ontario, Canada. Confidential.
• ***Summary:*** Contents: Minutes. In addition to the people present at the second conference on May 4, Mr. F. Dimmock was also present. Dr. E.S. Archibald and Dr. G.S. Whitby were unable to be present. Summary of six reports that were presented, followed by a general discussion, including the following subjects: Relative prices of soybean and linseed oil cake. Construction of central extractors to which the farmers could bring their soybeans, then take away their own oil cake for feeding purposes. Use of soybeans for hay and silage. Resistance of soybeans to drought; "It was not believed, however, that they could be profitably grown in southern Saskatchewan." Carbohydrate content of soybeans. Development of early soybean varieties by the Dominion Experimental Farms especially adapted to Canadian

conditions. “Mr. Dimmock stated that testing was in progress at six different farms this year and that substantially increased supplies of seed from selected varieties should be available for next year. It was felt, however, that Manitoba Brown represented about the limit of earliness attainable. The acreage in western Ontario had increased considerably owing to the good price (90-95 cents) paid by the mills in 1935. A new mill [Edgar Soya] had been erected at Belle River, which had contracted for the produce from 3000 acres.” Could the National Research Council help the Department of Agriculture in developmental work and cytological studies. There was agreement that there was no likelihood of the large scale development of soybeans in the prairie provinces of western Canada except perhaps in the Red River Valley [in southern Manitoba province]. However “farmers in a large area might find it profitable to grow a few acres of soybeans each year in a program of mixed farming.” Use of abundant soybean lecithin to inhibit rancidity in other food products. The making of plastics from soybeans should be studied.

The meeting lasted 1 hour and 4 minutes–from 2:30 to 4:10 p.m. Appendixes contain the 6 reports, plus 2 submitted after the meeting. All are cited separately. Address: Ottawa, Canada.

429. Burlison, W.L. 1936. The soybean. A plant immigrant makes good. *Industrial and Engineering Chemistry* 28(7):772-77. July. [23 ref]

• ***Summary:*** Contents: Introduction and brief history. Description of the bean. Soybean culture. Industrial uses. Imports. Composition of soybean seed. Composition of soybean oil. Composition of soybean-oil meal. Methods of processing soybeans for consumption: Expeller method, hydraulic-press method, solvent extraction process. Disposition of the domestic crop. Products derived from soybeans. Industrial use of soybean oil. Soybean oil in the paint industry. Soybean oil as a core binder. Other uses for soybean oil: Lecithin, sulphonated oil. Plastic industry. Soybean glue. Further investigation needed.

This article begins: “The soybean is one of the oldest crops grown. It was described in a Chinese book on Materia Medica, *Ben Tsao Gang Mu,* written by Emperor Shen-Nung about 4800 years ago... Soybeans were introduced into the United States in 1804, yet a hundred years there were very few grown outside the southern states.”

The section titled “Products derived from soybeans” (p. 775) contains an extensive list of commercial food, feed, and industrial products derived from soybeans and compiled from letters received by the University of Illinois during the latter part of 1931. “This list is increasing from month to month.” Some products have brand names and others only generic names. The following products were on the market in the USA and Canada at that time.

“Food products: Soybean flour. Soybean-meal flour. Refined edible soybean oil. Soybean salad oil. Chocolate bars (30% soybean flour). Cocoa (up to 60% soybean flour). Sausages (up to 50% soybean flour). Bread (7½% soybean flour). Rolls (10% soybean flour). Macaroni (20% soybean flour). Soybean muffins. Soybean cookies. Soybean doughnuts. Vegetable shortening. Infant foods. Diabetic foods. Oleomargarine. Lard substitutes. Filled sweets. Soybean sprouts. Soybean cheese. Soya cream biscuits. La Choy soy sauce. Zoybeans (cooked beans). Bacon and Zoybeans. Zoy bouillon. Casein gluten flour. Non-fat mayonnaise. Fatless spread. Soyex-malt-cocoa drink. Soybean milk. Soybean ice cream.

“Feed products: Cake or meal. Commercial feed. Dairy feed. Hog chow. Poultry chow. Dog chow. Calf chow. Rabbit chow. 34% protein chow chow. Chick Startena.

“Industrial products: Paint. Varnish. Enamels. Oilcloth. Linoleum. Printers’ ink. Glycerol. Celluloid. Lauxtex plastic wall coat. Lauxtein waterproof soybean glue. Lauxein emulsifier. Soap. Core binders. Rubber substitutes. Plastics.”

Photos show: (1) “A beautiful field of Illini soybeans, a variety extensively used for industrial purposes.” (2) “A soybean plant loaded with pods and ready for harvest.

Tables show: (1) “Utilization of soybeans and soybean products in 1930” For example: Soybeans ground for food: 200,000 bu (bushels). Soybean oil used in various edible products: Oleomargarine: 750,000 lb. Lard substitutes: 500,000 lb. Other food products: 4,750,000 lb. Soybean oil used in industrial products: Paint and varnish: 9,000,000 lb. Linoleum and oilcloth: 4,000,000 lb. Soap kettle: 8,500,000 lb. Soybean meal used in: Commercial feed: 84,100 tons. Other 15,000 tons. Soy flour for food: 850 tons. Infant and diabetic foods: 50 tons. Other uses, including glue: 10,000 tons.

Table 2: “Adaptability of soybean oil to various products.” Drying products: Paint, varnish, linoleum and oilcloth, waterproof goods. Soap products: Hard soaps (toilet, household, laundry), soft soaps (shampoos, automobile soaps). Edible products: Lard compounds, cooking oils, salad oils, fountain drinks, candy, mayonnaise, margarine. Miscellaneous: Foundry core oil, printers’ ink.

Note: A revised and considerably expanded version of this article, with the same title and author but a somewhat different format, was published two months later as *Illinois Agric. Exp. Station, Circular,* No. 461. 15 p. Sept. Address: Univ. of Illinois, Urbana, Illinois.

430. Lohse, H.W. 1936. The soya bean as a food product and industrial raw material. *Canadian Chemistry and Metallurgy* 20(7):224-25. July. (Chem. Abst. 30:6505).

• ***Summary:*** Contents: Introduction (incl. nutritive value of soybeans). Proteins and fats. Vitamins of soya bean. Soya bean as a food product. Soya bean milk. Soya bean flour.

Soya bean oil (obtained by solvent extraction process, hydraulic press process, or expeller process; food and industrial uses). Uses for extracted meal (food and industrial; including lecithin).

According to statistics from the Dominion Bureau of Statistics, consumption of soya bean oil in Canadian manufacturing industries was as follows: Miscellaneous food industries 499,451 lb, slaughtering and packing 169,916 lb, bakeries 112,693 lb, and biscuits & confectionery 20,200 lb. Total: 802,260 lb worth $48,062.

Concerning soya bean milk, the author states in this paper presented at the Canadian Chemical Convention: "Soya bean milk has been manufactured here in Canada by Milqo Limited in Hamilton since 1919. This firm erected one of the first, if not the first, plants for the purpose of this manufacture on a large scale in the Western world." Milqo Ltd. (which may be related to Vi-tone or Vitone in Hamilton) is probably the same company in Hamilton that was named Milk-Ko Products in 1954 (Soybean Blue Book p. 102). Address: Milqo Ltd., Hamilton, ONT, Canada.

431. Kaltenbach, D.; Legros, J. 1936. Soya: Selection, classification of varieties, varieties cultivated in various countries: Africa (Document part). *Monthly Bulletin of Science and Practical Agriculture (International Institute of Agriculture, Rome)* 27(8):291T-95T. Aug.

• ***Summary:*** "1. French West Africa: Trials were carried out in 1923 and 1926 at the Experiment Station of Soninkoura [probably Soninnkoura in the Segou region of Mali] with very little success; hence soya growing is not extensively practised. In 1935, trials were started again at the Banankoro Station (probably in Mali), but the results are not yet known. The only variety cultivated is Soja Hispida, the crops being used as green manure for the rice fields and for fuel oil production." Note: This document contains the earliest date seen for soybeans in Mali, or the cultivation of soybeans in Mali (1923; one of two documents). The source of these soybeans is unknown.

"2. Algeria: Soya is not cultivated in this country though a few trials were carried out which showed that it would be possible to grow this crop in easily worked soils if kept sufficiently cool in spring. Following large scale trials at the Agricultural Institute of Algeria, near Algiers, it was noted that only small harvests were obtained in a dry year. This plant cannot be grown on the coast where similar crops, such as haricot beans, chick peas and lentils are grown. A few soya plants may be found in the collections of the Botanical Garden, the Botanical Station and the Agricultural Institute. In the future soya may perhaps be grown to a certain extent among the irrigated crops of the Chelif.

"3. Belgian Congo: Observed about 30 years ago [i.e. about 1906] at Stanleyville by Commandant Lemaire, soya is found in the collections of the Eala Botanical Garden and was the object of experiments made at Sankuru in 1914-1915. It may appear strange that the cultivation of this leguminous plant has not developed to a greater extent in the Belgian Congo, all the more in that it has been introduced into West Africa, especially into Southern Nigeria, the Gold Coast [later Ghana] and Sierra-Leone.

"The oil content is as follows: Nigeria: 19.62%–Gold-Coast: 21.29%–Sierra Leone: 23.2%–Gambia: 17.5%.

"Among varieties grown in the Eala Botanical Garden mention may be made of a yellow variety, a purple, and the variety Otootan. Analysis has shown that they are as rich in total nitrogenous substances and oil as the soyas of West Africa and Cambodia. Note 1. This document contains the earliest date seen for soybeans in the Belgian Congo (renamed Zaire in 1971), or the cultivation of soybeans in the Belgian Congo (about 1906). It is not absolutely certain that the soybeans were being cultivated at Stanleyville. The source of these soybeans is unknown.

"4. Egypt: Soya growing was introduced into Egypt in 1910. This plant is cultivated at present only on a small scale and chiefly for experimental purposes. Trials have been made of different varieties principally at the Higher School of Agriculture and Agronomical Sections of the Ministry of Agriculture. Cultivation is confined to a small district of the province of Giza.

"There are no native varieties. Among introduced varieties, the following have given certain positive results: Mammoth Yellow, Virginia, Manchu, Biloxi, Tokio and Hispida. Note 2. This document contains the second earliest date seen (April 2004) for soybeans in Egypt, or the cultivation of soybeans in Egypt (1910). However Egyptian documents from 1912 and 1913 state clearly that soybeans were cultivated in Egypt in June 1911.

"Soya is a summer crop. When grown for forage it is cut in August when flowering has begun; when grown for seed, harvesting takes place in September or October. The average yields obtained per acre are: 6 tons of green forage and 400 to 600 kg. of seed. Note 3. This document contains the earliest reference seen for the cultivation of soybeans in Egypt.

Madagascar: Soybean culture was introduced in 1911 and various trials have been carried out. Note 4. This document contains the earliest date seen for soybeans in Madagascar, or the cultivation of soybeans in Madagascar (1911) (one of two documents). The source of these soybeans is unknown.

"5. Morocco: Soya growing is still in the experimental stage in Morocco where trials have been carried out for about 15 years [i.e., from about 1921]. Cultivating has not developed owing to the low yields obtained and also to a tendency to shedding shown by the majority of varieties so far tried out–a tendency which appears to be somewhat increased by the climatic conditions of Morocco.

"Trials in acclimatisation with new varieties have been carried out in Morocco by the Agricultural Service, the Central Station of Rabat and other Experiment Stations of the Protectorate.

"There are no native varieties. The foreign varieties were obtained chiefly from Canada and Manchuria. Qualities required are: (1) pods which do not shed the seed; (2) adequate productivity." Note 5. This is the earliest document seen (Aug. 2009) concerning soybeans in Morocco, or the cultivation of soybeans in Morocco (one of two documents). This document contains the earliest date seen for soybeans in Morocco, or the cultivation of soybeans in Morocco (about 1921). The source of these soybeans was chiefly Canada and Manchuria.

"6. Rhodesia: Trials in acclimatisation have been carried out for a certain number of years at the Experiment Station of Salisbury and all the best known varieties have been tested. Several of these varieties, such as Otootan, Otoxi and Bilton [sic, Biltan], give excellent results as forage crops. The two best lines have been obtained by breeding from Otootan. They are rather more productive than their parent, but, on account of their black seeds, are not suitable for industrial purposes. The only variety recommended for export is Hermann, with yellow seeds.

"Several crossings have been made between lines with pods which do not shed but which are otherwise inferior in quality, with a view to obtaining varieties suitable for Southern Rhodesia where, owing to drought or reasons yet unknown, the pods have a marked tendency to open." Continued. Address: Rome, Italy.

432. Kaltenbach, D.; Legros, J. 1936. Soya: Selection, classification of varieties, varieties cultivated in various countries: Africa (Continued–Document part II). *Monthly Bulletin of Science and Practical Agriculture (International Institute of Agriculture, Rome)* 27(8):293T-95T. Aug. • ***Summary:*** Continued from page 293T. "7. Anglo-Egyptian Sudan: Trials in acclimatisation are carried out chiefly at the Experiment Station of Gezira and by the Agricultural Research Service of Wad-Medani.

"Trials carried out at Gezira: Soya growing was first introduced at the Gezira Station in 1931-1932. No native varieties are grown, all have been introduced either from the United States, the Union of South Africa or India...

"In general, the following observations may be made: The Indian types of soya grow better than the American or South African. The variety Poona Black is the best, followed by Kalimpong Brown Small. The variety Barberton showed very poor growth. Among American varieties Otootan was the best, then Biloxi and Virginia. The varieties Mammoth Yellow, Mammoth Brown, Illini and Haberlandt gave fairly good results. Mansoy and Easycook 17 failed completely. The others gave very mediocre results.

"Trials carried out by the Agricultural Research Service of Wad-Medani [a city located in East Central Sudan on the Blue Nile River, as of Aug. 2009]: Trials carried out since 1912 have shown that the climate of the central region of the Anglo Egyptian Sudan is completely unfavourable to soya cultivation.

"The following varieties were introduced during the course of trials: In 1912 varieties were introduced from India and South Africa... In 1916 varieties were introduced from the United States:... In 1931 varieties were again obtained from America:... As has already been said, all the trials showed that this region was not at all suitable for soya cultivation.

Note 1. This document contains the earliest date seen for the cultivation of soybeans in the Sudan (1912). The source of these soybeans was India and South Africa.

"8. Tripolitania [later part of Libya]: Soya growing has not yet emerged from the experimental stage. Investigations have been made at the Royal Experimental Agricultural Institute of Sidi Mesri. It may be said, however, that soya growing for seed production will not be practised generally, as this is only possible in irrigated regions involving high costs." Note 2. This is the second earliest document seen (Aug. 2009) concerning soybeans in Libya, or the cultivation of soybeans in Libya. The earliest is by Vivenza (1928).

"9. Tunisia: Trials with varieties of soya have only been made with a view to cultivation for forage. At present soya growing is of no practical importance in Tunisia.

"10. Union of South Africa: The various Agricultural Experiment Stations in the Union of South Africa have tested about 50 varieties of soya introduced from the East and United States. The differences between these varieties lie chiefly in the following characters: Colour of the seed coat, colour of the flower, existence or absence of pubescence, colour of the cotyledons, shape of the seeds, size and colour of the hilum, characters of the pods, duration of growth period (varying from 100 to 150 days), height and growth habit of the plant, size and shape of leaves.

"It was observed that two varieties gave entirely different results and that, consequently, there was a possibility of obtaining a variety adapted to the particular climatic conditions and to the utilisation required. Table XXVIII, taken from the publication of F.M. Du Toit, on soya growing in the Union of South Africa *(Soy Beans in the Union,* Pretoria, 1932) gives the characteristics of the 8 most important varieties in the Union." Address: Rome, Italy.

433. Dominion Linseed Oil Co., Food Division. 1936. CFRB tonight at 8 o'clock (Ad). *Toronto Daily Star (Canada).* Sept. 2. p. 12.

• ***Summary:*** On CFRB tonight listen to "'Blue Mountain Mill' directed by Donald Heins and Harvey Robb,... Presented by The Food Division, The Dominion Linseed Oil Co., Ltd., makers of Livingston's Soy Flour, used under our approved formulas in Ful-Soy Bread."

Note: This ad also appeared in this newspaper on Sept. 9 (p. 22).

434. Battle Creek Food Co. 1936. Re: The Dionne quintuplets and soy acidophilus milk. Letter to Hon. David Croll, Minister of Public Affairs, Parliament Buildings, Toronto, Ontario, Canada, Sept. 17. 2 p. Typed, without signature (carbon copy).

• ***Summary:*** "On inquiry of Dr. Allan Roy Dafoe you will learn that under his advice the quintuplets make daily use of soy acidophilus milk, a preparation which has cured them of bowel trouble and keeps them free from this distressing ailment. For many months, under instruction from Dr. John Harvey Kellogg, who gave us the formula for making soy acidophilus milk, we supplied the quintuplets with this preparation without charge and even paid the expense of transportation by parcel post. For several months we have been supplying it at a nominal cost. Dr. Dafoe has mentioned the use of acidophilus in papers published in medical journals and the same fact has been broadcast through the newspaper press."

"We are anxious that other infants, thousands of whom are dying of this same trouble every year, should have the benefit of this most efficient and practically unfailing remedy for this very common affection from which all bottle-fed babies are likely to suffer and with a mortality rate of ten times that of breast-fed infants.

"We are preparing to introduce this preparation to both the profession and the public end desire to refer to the experience of the quintuplets as evidence that the claims made for the preparation are valid.

"Will you kindly write us whether we will be expected to pay a royalty for mentioning the fact that soy acidophilus milk is used by the quintuplets and, if so, how much." Address: Battle Creek, Michigan.

435. Kellogg, John Harvey. 1936. Re: Soy acidophilus milk and the Dionne quintuplets. Letter to Dr. Allan Roy Dafoe, The Dionne Quintuplet Guardianship, Callander, ONT, Canada, Sept. 21. 2 p. Typed, without signature (carbon copy).

• ***Summary:*** "We are seeing such wonderful results from the soy acidophilus milk that I feel the time has come when it should be placed before the public so that a larger number of people may benefit by it... this business of making soy acidophilus milk is a purely philanthropic effort. No one will make any money out of it. The patents have been turned over to the Race Betterment Foundation and any profit will be used for educational work along health lines, chiefly the support of Battle Creek College... The manufacture of soy acidophilus milk will never be a large business, but the manufacturers will, I am sure, be glad to pay a modest royalty for use of the pictures of the quints in selling the ideas to the public... There are parties waiting to undertake the manufacture and distribution of soy acidophilus here in the South. P.S. Admiral Byrd has been using this milk with great benefit. During his lecture tour..." Address: Miami, Florida.

436. Burlison, W.L. 1936. The soybean. A plant immigrant makes good. *Illinois Agric. Exp. Station, Circular* No. 461. 15 p. Sept. First printed in Industrial and Engineering Chemistry. 1936. 28(7):772-77. July. [24 ref]

• ***Summary:*** A shorter version of this article, with the same title and author but a somewhat different format, was published two months earlier in *Industrial and Engineering Chemistry* 28(7):772-77. July.

Contents: Introduction and brief history. Description of the soybean. Soybean culture. Industrial uses. Disposition of the domestic crop. Products derived from soybeans: Food, feed, and industrial products. Imports. Chemical composition: Soybeans, soybean oil, soybean oil meal. Methods of processing soybeans: Expeller, hydraulic-press, solvent extraction. Industrial use of soybean oil. Use of soybean oil in the paint industry. Soybean oil as a core binder. Other uses for soybean oil: Lecithin, sulphonated oil. Plastic industry uses soybean oil meal. Glue from soybean oil meal. Soybean oil meal for fertilizers. Further investigation needed.

The section titled "Products derived from soybeans" (p. 6-7) gives is an extensive list of commercial food, feed, and industrial products derived from soybeans. This list is almost identical to that published two months earlier. Address: Chief in Crop Production.

437. **Product Name:** Livingston's Soy Flour.
**Manufacturer's Name:** Dominion Linseed Oil Company.
**Manufacturer's Address:** Owen Sound, ONT, Canada.
**Date of Introduction:** 1936. September.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** F. Dimmock. 1936. "Division of Forage Plants: A report on the present status of the soybean industry, particularly in western Ontario." In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. Appendix "B." p. B-3. "The Dominion Linseed Oil Company plant at Baden, Ontario... is operating a press of the expeller type at this point and is said to have been processing soybeans for 4 to 5 years" [i.e. since about 1931 or 1932]. "Mr. Livingstone, president of the Dominion Linseed Company, was interviewed in Toronto and states that in addition to soybean oil and meal his company is

producing soybean flour at its plant in Owen Sound. This flour has been made by a special process and retains the entire oil content of the bean."

Ad in *Toronto Daily Star* (Canada). 1936. Sept. 9. p. 22. "CFRB 8 o'clock to-night." Listen to "'Blue Mountain Mill' directed by Donald Heins and Harvey Robb,... Presented by The Food Division, The Dominion Linseed Oil Co., Ltd., makers of Livingston's Soy Flour, used under our approved formulas in Ful-Soy Bread."

438. **Product Name:** Ful-Soy Bread.
**Manufacturer's Name:** Dominion Linseed Oil Company.
**Manufacturer's Address:** Owen Sound, ONT, Canada.
**Date of Introduction:** 1936. September.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** Ad in *Toronto Daily Star* (Canada). 1936. Sept. 9. p. 22. "CFRB 8 o'clock to-night." Listen to "'Blue Mountain Mill' directed by Donald Heins and Harvey Robb,... Presented by The Food Division, The Dominion Linseed Oil Co., Ltd., makers of Livingston's Soy Flour, used under our approved formulas in Ful-Soy Bread."

Ad in *Toronto Daily Star* (Canada). 1937. March 23. p. 30. "You'll love this new bread."

439. Glidden Company (The). 1936. The famous Glidden Laboratories are one of the largest factors in the industrial promotion of soybeans (Ad). *Proceedings of the American Soybean Assoc.* p. 7.
• ***Summary:*** "Always on the alert for new industrial uses for soybeans–always creating new outlets for the ever increasing soybean crop–The Glidden Company is recognized as one of the largest buyers of soybeans.

"The Glidden Soya Division, operating at capacity, will next year pay the American farmer between $3-4 million for his soybeans.

"The Glidden laboratories' research work has shown the value of soybeans in many diversified industries. The products of the Soya Division are used by the paint industry, the shortening industry, the paper industry, the confectionery industry, the bakery industry, the dog food industry, the brewery industry, the cosmetic industry, the automobile industry, the packing industry and plastic manufacturers.

"With constant and tireless effort the Glidden laboratories are ever adding to these outlets... helping to increase soybean consumption."

Factories in Reading, Pennsylvania; Chicago, Illinois; St. Louis, Missouri; Minneapolis, Minnesota; New Orleans, Louisiana; Long Island City, New York; Los Angeles and San Francisco, California; Toronto (Canada). A large illustration shows a chemist in a laboratory, dressed in a white lab-coat, standing behind a bench and various flasks, retorts, and burners. Address: National Headquarters: Cleveland, Ohio.

440. Morse, W.J. 1936. Soybeans in the United States: In relation to world production and trade. *Proceedings of the American Soybean Assoc.* p. 55-64. 16th annual meeting. Held 14-16 Sept. in Iowa. [2 ref]
• ***Summary:*** The slow advance of soybean "cultivation in Western Countries was undoubtedly due to the lack of adapted varieties for various soil and climatic conditions. Increase of acreage and production in the United States is closely correlated with the introduction of varieties from the Orient. In less than thirty years the acreage of soybeans in the United States has increased a hundred fold–from about 50,000 acres in 1907 to nearly 5½ million acres in 1935. During this period the United States Department of Agriculture has brought about 10,000 introductions of soybeans from the soybean regions of the Far East and the culture of the crop has spread from a few states in the early days to twenty-seven states at the present time.

"In Manchuria, often called 'the land of beans,' the soybean is grown to a greater extent than in any other country. It occupies about 25 per cent of the cultivated area and is relied on by the Manchurian farmer as a cash crop. With its rise as an international trade commodity, it is truly the 'Wealth of Manchuria.' Chosen [Korea] and Japan are large producers and southward from China the soybean is cultivated to some extent in India, Siam [later renamed Thailand], the Philippines, Cochin China, and during the past decade the production has nearly doubled in the Dutch East Indies. In Siberia extensive experiments have been under way to extend the cultivation of the crop but progress has been slow and Siberian beans have not yet been a factor in international trade.

"The production of soybeans in the Western World is concentrated largely in the Corn Belt States of the United States. Beginning with the experiments of Haberlandt in Austria in 1877, the soybean has been grown experimentally in most of the European countries but in general the climatic conditions are not well suited to its culture with the possible exception of certain regions, such as the Ukraine in the U.S.S.R. Varying degrees of success have been obtained in different regions of Africa, especially South Africa where yields of 25 to 35 bushels per acre have been obtained. Experiments in nearly all South American countries and Mexico have shown some successful results [as] in Argentina and Cuba but acreage is not extensive. In Canada, considerable interest had been shown in the crop but its culture–about 15,000 acres–is confined chiefly at present to the Province of Ontario. The future trend of the crop for commercial purposes undoubtedly will be concentrated largely in the United States, Canada, and certain regions of the U.S.S.R."

A table (p. 56) shows the increase in production of soybeans (in million bushels) during the 10-year period from 1925 to 1935 in the world's top five producing countries: Manchuria 92.67 -> 140.4. United States 5.190 -> 39.64. Chosen (Korea) 18.72 -> 21.96. Japan 18.31 -> 13.31 (1933). Netherland India [later Indonesia] 3.536 -> 6.676 (1934).

"Bean trade was an ancient and flourishing institution when the ports of China were first opened to the commerce of the Western World. In 1835, Newchwang (Yingkow, Yingkou), in South Manchuria, was an important port of shipment for the great coastal trade in beans, bean cake, and bean oil to the ports of southern Chinese provinces and other oriental regions. Manchuria is still the chief source of world trade in soybeans and from here the beans and bean products oil and cake move principally to other provinces of China, Japan, the Philippines, the East Indies, and to other countries of Northwest Europe. In 1908, about 7,000,000 bushels of beans were shipped out through the port of Dairen, chiefly to Chinese and Japanese ports. For the period 1925-1929, the average annual shipments to China, Japan, and European countries were 62,353,566 bushels. The first successful shipment from Manchuria to Europe was made to an English oil mill in 1907, and as an important source of vegetable oil and animal feed the beans soon found a market not only in English oil mills but in other European countries and America. Since 1931, when American-grown soybeans were first exported to European markets, chiefly to the oil mills of Germany, there has been an open European market to the American farmer. With economical methods of production and high quality beans, America is in a position to compete for the 50,000,000-bushel trade in European markets."

Two tables (p. 58) show international imports and exports of soybeans by major trading countries for an average 5-year period (1925-29) and for 1934. The leading importers in 1934 (preliminary, with imports in million bushels) are: Germany 33.57. Japan 20.29. Denmark 9.910. United Kingdom 6.615. Netherlands 4.695. Sweden 3.426. Italy 0.739. United States 0.006. The leading exporters in 1934 are: Manchuria 44.21 (down from 62.35 in 1925-29). Japan 0.025. Netherlands 0.0009.

"In recent years, the oil milling industry of Manchuria has declined quite markedly. During the height of processing beans for oil and cake, more than 90 mills were in operation, while late in 1930 not more than 25 mills were crushing beans. The decline in this industry has been due chiefly to a decreased demand for bean cake as fertilizer, the low price of silver, and almost the entire suspension of bean oil export due to the development of the oil extraction industry in Europe. In European countries it has become more profitable to import soybeans than to import bean oil."

Two tables (p. 59) show international imports and exports of soybean oil by major trading countries for an average 5-year period (1925-29) and for 1934. The leading importers in 1934 (preliminary, with imports in million lb) are: Netherlands 44.00. Belgium 27.60. United Kingdom 24.13. Austria 22.07. Morocco 20.28. Sweden 12.55. Also listed are: Norway 8.701. Algeria 0.004. The leading exporters of soybeans in 1934 (preliminary, with imports in million lb) are: Manchuria 122.6. Denmark 41.80. Netherlands 26.05. Germany 24.99. Sweden 8.98. Japan 7.95 United States 2.040.

"Practically all exports of soybean cake and meal have originated in Manchuria and average about 1,375,000 tons for the five-year period 1926-31. About 70 per cent of this exportation went mainly to Japan, Chosen, and China. Cake and meal shipments to European countries went chiefly to Germany, although considerable quantities were exported to Denmark, Sweden, the Netherlands, and Finland. The average importation of soybean meal and cake into the United States for the five-year period 1930-1935 was 31,726 tons."

"The rise of the soybean to a crop of special importance in the world's commerce and in the industry of the United States is one of the most remarkable agricultural developments of recent times." Address: Bureau of Plant Industry, USDA, Washington, DC.

441. Slawson, H.H. 1936. Agriculture's Jack of all trades: Introducing the versatile soybean with which you may either build automobiles or run them and in which many people see possibilities for farm relief without benefit of subsidy. *Nation's Business* 24(9):24-26, 94. Sept.

• ***Summary:*** Contents: Introduction. A program for soybeans (Regional Soybean Laboratory, Urbana, Illinois). Wood glue from soybeans (I.F. Laucks). Helps bread stay fresh. A twenty-year development.

Five years ago at the Univ. of Illinois soybean researchers searched the USA and Canada for commercial soy products; they collected about 100. "Today that list numbers more than 300 and the ball seems just beginning to roll."

On 1 July 1936 a systematic research program on soybeans was started at the University of Illinois at Urbana. Funded by the federal government, with 12 midwestern state agricultural colleges cooperating, an industrial research laboratory as been established in Urbana. Dr. O.E. May of USDA's Bureau of Chemistry has been placed in charge, with the "help of Dr. W.J. Morse, government scientist, who has made the study of soybeans his life work." The program will have three objectives: "1. Improvement of present industrial uses and development of new industrial uses for soybeans." 2. Research on the effects of different processes on the quality and quantity of soybean processes. "3. Facilities for testing different varieties as to adaptability for industrial use."

In 1930 a research chemist in a private laboratory developed a new method for improving the head of foam on beer–using soy flakes. "Today soybean beer flakes are being made on a commercial scale in Chicago and from there they are pouring into many of the country's biggest breweries."

In the Pacific Northwest, five new fir plywood factories (making a total of 23) have been constructed this year–because glue made from soybeans is less expensive than and superior to (incl. more water resistant) traditional plywood glues. Together with several pine plywood factories in California and British Columbia, they are using tons of the new soybean glue each day.

The initial impulse for this new industry came from automobile manufactures who complained that the plywood they were buying was not sufficiently water resistant. So the Pacific Coast Plywood Manufacturers Association sponsored a contest to find a new glue. A newcomer, I.F. Laucks, Inc., of Seattle, won with some soupy stuff that did not look like glue at all. And "today this soybean glue–its formula a trade secret–is the standard glue of the plywood industry. Mr. Laucks discusses the reasons for the success of this new glue: (1) Most important is its low cost. (2) Since soybeans are an annual crop, "production can be increased as the demand grows. This is not true of casein or blood, which are by-products of other industries more or less fixed in their production." (3) It is more uniform. (4) It is more "foolproof" than other water-resistant bases.

At Iowa State College, Dr. O.R. Sweeney is producing gasoline from soybean oil; he cracks it by heating to 350ºC using animal charcoal as a catalyst. He then distils one of the fractions. The first person to make petroleum from soybean oil was the Japanese scientist Satow, who made a calcium soap from the oil then subjected it to destructive distillation to get light, middle, and heavy grades of petroleum. Forty gallons of soybean oil yielded about 25 gallons of soybean petroleum, 33 pounds of glycerine (for use in explosives), and 480 cubic feet of combustible gas.

The U.S. paint industry was one of the first to make large use of soybeans–especially in Illinois. Soybean flour helps bread to stay fresh longer. Soybean lecithin is used by confectioners. Tanners use soybeans to increase the grease-absorbing properties of chrome leather. Textile manufacturers use it to make their fabrics soft, supple, and lustrous. It is also used by rubber makers, linoleum makers, soap makers, and sausage and wiener makers. Doctors prescribe soybean 'milk' (which is practically free of starch) for some babies and many diabetics. Even the family dog now consumes soybeans, which are less expensive than meat and make his [or her] coat sleek and shiny.

"Not half the story of this amazing development has been told here. U.S. soybean production jumped from around 5 million bushels in 1925, to 18.6 million in 1934 and 39.6 million in 1935. Illinois is the leading sate.

"Almost two decades ago, when the first president of the American Farm Bureau Federation, James R. Howard, was beginning that organization's constructive efforts to aid agriculture by other means than politics, he made a remark which is just beginning to be appreciated at its full significance.

"'The surest relief for agriculture,' Mr. Howard said, 'will come from the production of new agricultural output that will go to industry rather than to the human stomach.'

"The response to that, so far as soybeans are involved, is seen in a recent government statement that at present more than 120 industrial concerns are making soybean products. They include about 35 soybean mills in ten states and a number of cottonseed mills which crush soybeans for oil and meal; 15 soybean flour mills; 20 soybean food products factories and more than 50 plants where various industrial commodities are fabricated from the magic soybean.

"It looks as if industry is beginning to know its beans."

Photos show: (1) A tractor in a field of piles of soybean hay pushing a device designed to speed the job of getting the hay to the baler. (2) A warehouse in Manchukuo filled with piles of round soybean cakes. Two men are carrying 3-4 each on one shoulder up a wooden ramp. (3) A workman standing by a vat filled with a thick white liquid. "The first step in making auto parts is to feed the [soy] bean fibers into the rills that mix them." (4) Black auto parts grown on the farm, with a pile of some soybean powder that has not yet gone to the press. (5) "Powdered soybean fibers fed into this press come out in the form of distributor terminal plates for automobiles."

442. Watson, C.J.; Woodward, J.C.; Davidson, W.M.; Muir, G.W.; Robinson, C.H. 1936. The digestibility of Canadian feeding stuffs–Soybean oil meal. *Scientific Agriculture (Ottawa)* 17(1):22-30. Sept. [7 ref. Eng; fre]
• ***Summary:*** Grade Shorthorn Steers were fed soybean oil meal, hydraulic or expeller processed. Compared with linseed oil meal (per 100 lb of dry matter), the soybean oil meal contained more digestible protein and more total digestible nutrients. Based on their digestible nutrients content, soybean oil meal was estimated to be worth $4-5 more per ton than linseed oil meal. Address: Central Experimental Farm, Ottawa, Ontario.

443. LeClerc, J.A. 1936. Partial list of manufacturers of soybean flour. Washington, DC: USDA Bureau of Chemistry and Soils. Food Research Div. Oct. 16. 1 p. Oct. 19. First ed, Oct. 1933. Unpublished manuscript.
• ***Summary:*** The following are listed: 1. Funk Brothers, Bloomington, Illinois. 2. A.E. Staley Manufacturing Co., Decatur, Illinois. 3. Shellabarger Grain Products Company, Decatur, Illinois. 4. Soya Millers, Inc., Seattle, Washington. 5. American Soya Products Corp., Evansville, Indiana. 6.

Fearn Soya Food Products, 355 W. Ontario Street, Chicago, Illinois. 7. Allied Mills, Inc., Peoria, Illinois. 8. The Glidden Co., Union Trust Bldg., Cleveland, Ohio. 9. Archer-Daniels-Midland Company, Chicago, Illinois. 10. Madison Foods, Madison, Tennessee. 11. Battle Creek Food Factory, Battle Creek, Michigan. 12. Cereo Company, Tappan, New York. 13. LaSierra [La Sierra] Industries, Ontario, California. 14. MacDowell Brothers, Brookville [sic, Brockville], Ontario [Canada]. 15. The Dietetic Supply House, Inc., 1750 W. Van Buren St., Chicago, Illinois. 16. Hilkrest Health Products, 120 Carroll Ave., Takoma Park, Maryland. 17. The Wilbur-Gardner Company, Glendale, California. 18. General Soya Corp., 120 Broadway, New York, New York. 19. Soybean Products Company, 4900 W. Flournoy Street, Chicago, Illinois. 20. El Molino Mills, 5604 Valley Blvd., Los Angeles, California. 21. Mitchell Milling Co., 5613 Lexington Ave., Los Angeles, California.

Note: This is the earliest document seen (Sept. 2009) concerning El Molino Mills and soy. Address: Washington, DC.

444. Dominion Linseed Oil Co., Food Division. 1936. Bakeries in Toronto where you can buy Ful-Soy Bread (Ad). *Toronto Daily Star (Canada).* Oct. 21. p. 9.
• ***Summary:*** "This new bread, advertised on 'Blue Mountain Mill' each Wednesday night, has a delightful nut-like flavour, is alkaline, rich in minerals and vitamins, and is non-fattening [sic]. Its high protein content makes it excellent for children.

"Made with genuine Livingston's Soy Flour."

The names and addresses of 27 bakeries in Toronto are given, starting with Barretts Bakery, 1614 Gerrard St. East.

Ful-Soy Bread is also sold by leading grocery stores." Insist on the loaf with the red, blue and white label. If you have difficulty in securing this bread, please write or telephone The Food Division, The Dominion Linseed Oil Co. Limited, 587 Fleet St., Toronto (Elgin 9495) and we will see that you are supplied.

Livingston's Soy Flour is also on sale in Toronto.

445. Slawson, H.H. 1936. Industry knows its beans. *Toronto Daily Star (Canada).* Oct. 27. p. 4.
• ***Summary:*** This is a reprint (or long summary) of: Slawson, H.H. 1936. "Agriculture's Jack of all trades: Introducing the versatile soybean with which you may either build automobiles or run them and in which many people see possibilities for farm relief without benefit of subsidy." *Nation's Business* 24(9):24-26, 94. Sept. Address: USA.

446. **Product Name:** Libby's Homogenized Baby Foods [Cereal Combination with Soy Bean Flour].
**Manufacturer's Name:** Libby, McNeill & Libby of Canada, Limited.
**Manufacturer's Address:** Chatham, Ontario, Canada.
**Date of Introduction:** 1936. November.
**Ingredients:** Incl. Whole milk, whole wheat, soya flour.
**Wt/Vol., Packaging, Price:** Two tins for 19¢.
**How Stored:** Shelf stable; refrigerate after opening.
**New Product–Documentation:** Loblaw Groceterias Co. Limited. 1936. "Look for 'all three' at Loblaws: Quality, price, cleanliness (Ad). *Toronto Daily Star* (Canada). Nov. 19. p. 15. Near the lower right of this large ad is a section titled "Libby's Homogenized Foods for Infants–Put up in the following combinations." No. 4 of 6 is: "Whole milk, whole wheat, soya flour." The price of each is 2 tins for 19¢."

447. Loblaw Groceterias Co. Limited. 1936. Look for "all three" at Loblaws: Quality, price, cleanliness (Ad). *Toronto Daily Star (Canada).* Nov. 19. p. 15.
• ***Summary:*** Near the lower right of this large ad is a section titled "Libby's Homogenized Foods for Infants–Put up in the following combinations." No. 4 of 6 is: "Whole milk, whole wheat, soya flour." The price of each is 2 tins for 19¢. Address: Toronto.

448. Rowland, B.W. 1936. Sizing composition. *Canadian Patent* 362,446. Dec. 8. *

449. Calkin, D.L. 1936. The soya bean: Its growth, processing and uses. *Engineering Journal / Revue de l'Ingenierie (Engineering Institute of Canada)* 19:288. *
• ***Summary:*** This was first presented as a paper before the Montreal Branch of The Engineering Institute of Canada, January 23rd, 1936. Address: Dominion Soya Industries Limited, Montreal, Quebec.

450. **Product Name:** Soybean Oil, Soybean Oil Meal, Soybean Flour.
**Manufacturer's Name:** Edgar Soya Products, Limited.
**Manufacturer's Address:** Belle River, ONT, Canada.
**Date of Introduction:** 1936.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** F. Dimmock. 1936. "Division of Forage Plants: A report on the present status of the soybean industry, particularly in western Ontario." In: National Research Council of Canada. 1936. Proceedings of the Second Conference on Soybeans. Ottawa, Canada. Appendix "B." p. B-3. "At Belle River, Ontario, an entirely new mill is now in the course of construction. Mr. James Edgar, of Edgar Sugar House, Detroit, Michigan, is building this plant under the name of the Edgar Soya Products, Limited. The intention is to produce oil, meal and flour. The mill is to consist of two Ford solvent extractors manufactured by the Ford Motor Company... This company intends to contract with growers for acreage. The contract, a

copy of which was secured and is attached herewith, calls for a minimum price of 80 cents per bushel of beans, on the farm. Although no attempt has been made to canvas the farmers, contracts for more than 400 acres have already been secured. It is expected that this mill will have no difficulty in obtaining sufficient acreage to provide for its requirements."

451. The soya bean in Wellington County [Ontario, Canada]. 1936. Undergraduate thesis, Ontario Agricultural College, Canada. *

452. Fordson Estates Ltd. 1936. English acclimatized soya beans. Boreham House, Boreham, Essex, England. 4 p. [2 ref]
• ***Summary:*** Fordson Estates in Boreham, Essex, England, began to grow soya beans in 1932. The first attempt was a failure since the varieties matured too late, but a second attempt in 1933 met with more success, as 47 different varieties from Manchuria, Japan, Canada, and North America were tested. Among these varieties were four that had been acclimatized by Mr. J.L. North, late Curator of the Royal Botanic Gardens, Regents Park. The only plants to reach full maturity in September were Mr. North's four varieties. Many of the foreign varieties, though not suitable for seed production, could be grown quite satisfactorily for hay which is cut about 4-6 weeks before the seed stage is reached. In 1934, a successful attempt was made to grow soya beans for seed on a field scale; the acclimatized seem of the 1933 crop was used. The plants were sown during the first week in May and harvested during the first 2 weeks in September. A illustrated article appeared in the *Times* of London on 29 Aug. 1934 showing the field at maturity. "This was the first time in agricultural history that soya beans had been grown as a field crop in Great Britain. The seeds were judged to be as good as any grown in other parts of the world... The successful harvesting of the 1934 crop was followed by an enormous demand for English seed from all parts of the United Kingdom, Europe and the Colonies. Most of the seed was sold for trial purposes in different localities and, in 1935, soya beans were grown in practically every county in England." There follows a description of available seed varieties, recommended cultural practices, and references to several books on the subject.

Note: Much of the information in this booklet first appeared in Elizabeth Bowdidge's *The Soya Bean* (1935). At the end of page 3 is a statement: "Soya Foods, Ltd., Rickmansworth, Herts, have arranged to buy available supplies of soya beans grown in England and the Empire at market prices, if in dry and sound condition. Supplies not exceeding 1,000 pounds may be sent freight paid without notification." On the last page is a price list for four varieties of soya beans that have been acclimatized to England by Mr. North. Named Green "Jap," Yellow "J," Black "O," and Brown "C," they are sold in weights of 75 lb. or less. Prepaid orders are to be sent to Fordson Estates Limited, Boreham House, Boreham, Essex.

453. Gray, George Douglas. 1936. All about the soya bean: In agriculture, industry and commerce. London: John Bale, Sons & Danielsson Ltd. ix + 144 p. Introduction by James L. North. Late curator, Royal Botanic Gardens, Regent's Park, London. Index. 28 cm. [19 ref]
• ***Summary:*** A comprehensive, early work on the soybean. Gray was a Scotch physician. Contents: 1. Introducing the soya bean. 2. The soya bean plant and its cultivation. 3. The soya bean as food: Dietetics, immature green beans, mature dried beans, soya bean coffee, soya bean chocolate, soya bean sprouts, soya bean milk, soya bean flour (incl. Berczeller flour, Soyvita bread made by Messrs. Wm. Beattie, Ltd., Glasgow), bean curd [tofu], soy (also called soya bean sauce, Chinese bean sauce, or shoyu), miso, fermented bean curd (p. 66-67). 4. Soya bean oil. 5. Soya bean trade. 6. The soya bean in agriculture.

Addenda: Soya bean products in the USA. Dieting and recipes. Statistics. India. Bibliography.

In the chapter on "Soya bean oil" we read (p. 75): "In England, the bean oil trade is carried on by the following firms:–The British Oil and Cake Mills Ltd., the ordinary shares of which are held by Lever Bros., Ltd., so that they are a branch of Unilever, Ltd.

"The Hull Oil Manufacturing Co., Ltd., Hull, now merged in the foregoing concern.

"The Premier Oil Extracting Mills, Ltd., Hull.

"Messrs. Wray Sanderson & Co., Hull.

"The Medina Refinery Ltd., Deptford, London.

"Messrs. J. Bibby & Sons Ltd., Liverpool.

"The Erith Oil Works Ltd., Erith" [Kent].

The first addendum, titled "Soybean products exhibited by the American Soybean Association" (at Washington, DC, p. 120-24) lists the following companies and each of the soy products that they manufacture: American Lecithin Corp. (Atlanta, Georgia), Archer-Daniels-Midland Co. (Milwaukee, Wisconsin), Armstrong Paint and Varnish Works (Chicago, Illinois), Battle Creek [Food] Factory (Battle Creek, Michigan), The Blanton Co. (St. Louis, Missouri), Cereo Co. (Tappan, New York), The Davies-Young Soap Co. (Dayton, Ohio), Detroit Graphite Co. (Detroit, Michigan), Eastern Health Food Stores Association (Washington, DC), Funk Brothers Seed Company (Bloomington, Illinois), Harshaw Essential Foods, Inc. (Cleveland, Ohio), Keystone Macaroni Mfg. Co. (Lebanon, Pennsylvania), Kloss, Jethro (Takoma Park, Maryland: Fresh [soybean] milk. Pumpkin pie [soybean milk and soybean flour]. Soybean cheese. Soybean bread [20% soybean flour]. Soybean buns. Soybean sprouts. Soybean cake), Laucks, I.F., Inc. (Bloomington, Illinois–home office,

Seattle, Washington), Madison Food Company (Madison, Tennessee; Vigorost, Cheese [Tofu], Soybeans canned with Tomato, Soybeans canned plain, Dixie Fruit Crackers), Mead Johnson and Co. (Evansville, Indiana; Makes Sobee [Infant Formula]), Oriental Show-You Co. (Columbia City, Indiana), Paintcraft Co. (Galesburg, Illinois), Prince Macaroni Mfg. Co. (Boston, Massachusetts), Purina Mills (St. Louis, Missouri; makes Cresol disinfectant, Purina turkey and growing fattening chow, Purina lay chow, Purina egg chowder, Purina breeder egg chowder, Purina fitting chow, Purina rabbit chow, Purina chick Growena chow, Purina 34% cow chow, Purina chowder, Purina bulky cow chow, Purina 24% cow chow, Purina pig and hog chow, Protena all mash starting and growing food), Shellabarger Grain Products Company (Decatur, Illinois), Soyex Company, Inc. (Nutley, New Jersey), Staley Sales Corporation (Decatur, Illinois), The Stamford Rubber Supply Company (Stamford, Connecticut), Dr. Roy Monier, President, Board of Managers, State Hospitals (Jefferson City, Missouri), United Drug Company (Boston, Massachusetts), Vi-tone Company (Hamilton, Canada), Woolsey Paint and Color Co., C.A. (Jersey City, New Jersey), Bureau of Chemistry and Soils, Department of Agriculture (Washington, D.C.). Page 120 adds: "The exhibit also contained some 200 soybean products, mostly foods, brought from the Orient by Mr. W.J. Morse, Senior Agronomist, Department of Agriculture, Washington, DC, U.S.A." Note: Morse and P.H. Dorsett were in East Asia from 1929 to 1931, when they collected many samples of soybeans and soyfoods.

In the second addendum, recipes, the author notes that soy flour is widely used in diabetic diets. Two leading firms who make soy flour in England and who also incorporate it in various products are: Soya Foods, Ltd., Rickmansworth, Herts, and Dietetic Foods Ltd. 124 Victoria St., London, S.W. 1. "The former specialize in Soyolk which is flour prepared on the principles laid down by Professor Berczeller; it is a mealy powder, fatty to the touch. The latter firm are the sole distributors in Great Britain of the well-known 'Heudebert' Dietetic Food products, a French concern which makes different kinds of diabetic breads." The following recipes are then given; * = Calls for Soyolk soy flour: Soybeans, southern style. Soybean salad. Roasted soybeans [like dry-roasted peanuts]. Soybean croquettes. Soybean soufflé. Stuffing for baked fish*. White sponge pudding*. Shortbread*. Madeira cake*. Soya soup à la Reine (uses Heudebert soya flour). Soya chocolate (with soya flour). Soya vegetable soup (with soya flour). Soya bean sprout salad.

Note: This is the earliest English-language document seen (Feb. 2000) that uses the term "soya bean sprouts" to refer to these sprouts. Address: M.D. (Scotch physician) England. Late medical officer to H.B.M. Legation, Peking, China. Lieut.-Colonel, Retired.

454. Institut International d'Agriculture (International Institute of Agriculture). 1936. Le soja dans le monde [The soybean in the world]. Rome, Italy: Imprimerie de la Chambre des Deputes, Charles Colombo. viii + 282 p. Bibliography, p. 276-82. No index. 25 cm. [90 ref. Fre]

• ***Summary:*** A superb early work, containing extensive original information, looking at developments with soybeans and soyfoods country by country, worldwide. Contents. Preface (p. 1). A. Culture of soy *(soja;* p. 4): 1. Botanical description, selection, classification of the varieties. 2. Culture properly said. 3. Enemies and illnesses.

4. Culture in the various countries: 4a. The Americas (p. 38): Antigua, Argentina, Bermuda, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, USA (gives details on all varieties grown, and describes production, history, varieties, and cultural practices in North Carolina, Illinois, Indiana, Iowa, Maryland, Massachusetts, Mississippi, Missouri, New York, Ohio, West Virginia, Wisconsin, Conclusion), Guadeloupe, Guatemala, British Guiana, Dutch Guiana, British Honduras [Belize], Jamaica, Barbados, Martinique, Mexico, Montserrat, Peru, Puerto Rico, El Salvador, Trinidad and Tobago, Uruguay.

4b. Europe (p. 101): Germany, the Danubian countries, Austria, Spain, France, Great Britain, Hungary, Italy, Netherlands, Poland, Romania, Switzerland, Czechoslovakia, Turkey, USSR.

4c. Asia (p. 128): Ceylon, China and Manchuria, Cyprus, Federated States of Malaysia, British India (incl. Punjab, Bihar and Orissa, Burma, Berar, Madras Presidency, Bombay Presidency, Bengal (incl. Nepal, Bhutan, Sikkim, and the district of Darjeeling), Assam, North-West Frontier Province, United Provinces), Netherlands Indies, Indochina (incl. Tonkin, Annam, Laos, Cambodia, and Cochinchine), Japan, Palestine, Siam.

4d. Africa (p. 146): French West Africa, Algeria, Belgian Congo, Cyrenaica, Egypt, Eritrea, Madagascar, Morocco, Mauritius (Ile Maurice), Reunion (Réunion), Rhodesia, Anglo-Egyptian Sudan, Tripolitania, Tunisia, Union of South Africa.

4e. Oceania (p. 153): Australia, Fiji Islands, Hawaii, New Caledonia, New Zealand, Philippines.

B. Utilization of soya (p. 158): 1. The soybean in human nutrition and in industry: Whole soybeans, chart of the uses of whole soybeans, use of soya in the green state (green vegetable soybeans), soy sauce *(dau-tuong* of the Annamites, or *toyo,* named shoyu by the Japanese, or *chau-yau* or *chiang yoo* by the Chinese), condiments and sauces based on soya in the Netherlands Indies *(tempe, ontjom, tempemori* and *tempe kedele* [various types of tempeh and onchom, p. 168-70]), *tao tjo* [Indonesian-style miso], *tao dji* [soy nuggets], *ketjap, ketiap benteng* [Indonesian-style soy sauce], soymilk *(le lait de soja),* yuba *(crème de lait de*

*soja),* tofu *(le fromage de soja)* and fermented tofu *(des fromages fermentés,* made by Li Yu-ying near Paris), soymilk casein *(caséine du lait de soja,* for industrial use, including vegetable albumin, or galalithe [galalith]" [isolated soy protein], and artificial wool), soy lecithin *(lécithine de soja),* soy flour *(la farine de soja,* incl. soy bread, soy pastries, and soy cocoa).

2. Soy oil (p. 194): Food uses, industrial uses (including soaps, products resembling petroleum, paints, varnishes, linoleum, and artificial rubber), extraction, directory of U.S. manufacturers of materials and equipment for soybean processing, directory of U.S. and Canadian manufacturers of food products based on soya *(produits alimentaires à base de soja,* p. 205-06), directory of U.S. manufacturers of industrial soy products (p. 206-07).

3. Soybean in the feeding of domestic animals (p. 207): Forage, hay, silage, pasture, soybean seeds, the minerals in soybeans, soya as a feed for dairy cows, cattle, buffaloes, sheep, hogs, horses and mules, poultry.

4. Use of soya as fertilizer (p. 257). C. The trade of soya and of its by-products (p. 363): Production of soybeans in the principal countries, economic importance of soybean culture in the USA, soybean trade/commerce including tables of the major importers and exporters, and amounts traded annually in 1931-1934, price of soybeans, cost of production.

List by region and country of people and organizations that responded to a questionnaire sent by IIA (p. 273-76). Bibliography of main publications consulted, listed by region and country of publication.

Reunion *(Ile de la Réunion):* "The soybean (Le Soja) is only cultivated as an experimental crop, on a few square meters at the agronomic station" (p. 148).

Fiji *(Iles Fidji):* Soybean cultivation is not yet practiced in this colony; however soybean seeds are currently being imported in order to conduct a trial.

New Caledonia: In 1928 soybean cultivation was introduced to New Caledonia.

Note 1. This is the earliest document seen (Dec. 2007) concerning soybeans in Bhutan, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Israel, Jamaica, Madagascar, Morocco, New Caledonia, Palestine, Peru, or Réunion, or the cultivation of soybeans in Bhutan, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Israel, Jamaica, Madagascar, Mexico, the Middle East. Morocco, New Caledonia, Palestine, Peru, or Réunion. It is also the earliest document seen (Dec. 2007) concerning soybeans in connection with (but not yet in) Cyprus; it is stated that soybeans are not grown on the island of Cyprus. Soybean culture is not practiced in the Italian colonies of Eritrea (Erythrée, now part of Ethiopia) or Cyrenaica (Cyrénaïque, now part of Libya).

Note 2. This document contains the earliest date seen (June 2007) for soybeans in Bhutan, New Caledonia, or Réunion, or the cultivation of soybeans in New Caledonia (1928), or Bhutan or Réunion (1936) (One of two documents).

Note 3. This is the earliest French-language document seen (Jun. 2000) that mentions tempeh, which it calls "tempe" (p. 168). It notes that, in general, the indigenous people of the Netherlands Indies use soybeans mainly to make *tempe,* a product which, throughout central and eastern Java, takes the place reserved for *ontjom* in western Java. Tempeh is found in two forms: either in large flat cakes which are cut at the time of sale into small square morsels, or wrapped in folded banana leaves. A detailed description of the preparation of each of these two types of tempeh is given as well as another type of tempe, called *tempemori,* which is made with soybeans and coconut presscake.

Soybean culture is not known to be practiced in the following countries or colonies: Antigua, Barbados, British Honduras (renamed Belize in about 1975), Trinidad and Tobago. Address: Rome, Italy.

455. *Journal of the Toronto Dental Association.*1936. Directory–Sunsoy. 11:43. *

• ***Summary:*** On page 43 the listing states: "Soy Bean (Sunsoy) Products Ltd.–Toronto."

Note: This periodical is published by the Ontario Dental Association.

456. North, James L. 1936. Introductory chapter. In: G.D. Gray. 1936. All About the Soya Bean: In Agriculture, Industry and Commerce. London: John Bale, Sons & Danielsson Ltd. 144 p. See p. 1-9.

• ***Summary:*** This is the story of early attempts by Dr. North and others to grow soybeans in England. "In 1913 chance put in my hands thirteen small seeds of a variety of soya bean said to have come from North China in 1910 and to have ripened pods in Germany for two successive years. Sown by me the following May the plants grew to a height of 1½ feet and ripened seed in October. This took place at the Gardens of the Royal Botanic Society, of which I was then Curator. I was aware that of the many attempts to grow soya which had taken place in this country, all had failed, also that no others were being attempted, since it was the considered opinion of the Ministry of Agriculture and the Royal Agricultural Society that the soya bean was quite unsuited for growth here, as it required heat that would ripen maize.

"The podded beans were brought to the notice of Professor Bottomley, of King's College, and Professor Greenish, of the Pharmaceutical Society, and both considered the matter to be important. They pointed out that this country possessed no oil plant and was importing soya from Manchuria to the extent of half a million tons per

annum... They advised me to increase my stock as rapidly as I could.

"The result of the first year's crop was four hundred seeds from the original thirteen seeds; the second year four thousand and the third twelve thousand. In 1917 it became a question of finding space to grow them and it was decided to have part grown by a firm of market growers at Uxbridge, Middlesex and the rest on a farm at Manningtree, Essex, belonging to Mr. C.P. Ogilvie. Both were failures." The first crop failed because the land had been too heavily manured and the seeds were sown too far apart. The second crop, sown in the middle of a field of wheat, had been eaten by rabbits. Rabbits are still a major pest for soya beans.

Since little was known about the soya bean, Mr. North tried to gain experience by sending seeds to the Chelsea Botanic Gardens, the Horticultural Society at Wisley, the Cambridge Botanic Gardens, Messrs. Sutton and Sons, Reading, and to a friend in Hampshire. But the reports received were not encouraging. "That same year I got in touch with the United States Department of Agriculture at Washington [DC], I received from it not only soya bulletins and seeds of a number of American soya varieties for trial in England, but the promise of further assistance. I owe a very great debt of gratitude to that department and to Dr. W.J. Morse, its agronomist and soybean expert, the man who, more than any other, has made the United States the soya bean centre of the world and now a growing competitor with Manchuria as world exporter.

"The results of 1917 were better than those of the previous year and in 1918 I had sufficient seed of my one variety to plant half an acre on land lent by Mr. Clark at Virginia Water. These were sown in company with 12 American varieties, half being inoculated with a nodule culture supplied by Professor Bottomley."

Following some poor years, 1921, a drought year, was the best year to date. "Accounts of my success appeared in the Press and I wrote an article which came out in the *Illustrated London News* in October. As a result many applications for seed reached me and I sent samples to over one hundred places, among others to Professor Southworth of Manitoba College, Winnipeg [Canada]. He found my variety better than anything he had had there, both for fodder and seed, but not early enough in seasons with early frost. In return he sent me seed of a brown variety 'Manitoba Brown,' a selection from a well-known American variety 'Ogemaw.'"

1922 was a wet year and at his plot and not one person to whom North had sent seed reported success. On his own plot at Chiswick, where he had twenty varieties under test, only one, "Manitoba Brown," succeeded.

"In 1923 appeared Messrs. Piper and Morse's encyclopædic work, 'The Soybean,' in America; it solved a good many of my problems and I determined to follow American practice in future. From it I learned that two-thirds of the American crop was consumed as fodder upon the farm; that every variety had a fixed time ranging from 80 to 160 days for maturing; that in industry the chief value of the bean rested upon its oil content; and that the plant possessed what is now called 'local limitations,' meaning that a variety that grew well in one place could not be depended upon at another and that in American agricultural practice it was usual to test two or more varieties before growing it as a crop. This last was particularly interesting to me because it explained the erratic behaviour of some of my varieties when sent to other places.

"Convinced by the failure of my 1922 trials that soya was not yet ready to put forward as a crop plant, I extended my search to new sorts and with the help of friends abroad obtained many varieties from China, Manchuria, Japan, South Africa and India." North then began to specialize in short season varieties. "My friend Dr. Morse approved the plan and from then onward sent me only varieties which in America took less than one hundred days to mature... Using Manitoba Brown Soya as a standard I was able to select several varieties as early or even earlier than it." In 1930 Messrs. Sutton and Sons of Reading [seedsmen] decided to put the variety Brown C in their catalogue.

"In 1931, Mr. A.F. Secrett, a Twickenham market grower, offered the use of a piece of land at Brentford, Middlesex; it enabled me to grow on a larger scale than had been possible previously. In September the same year a photograph of the crop appeared in the *Evening News.* By chance it was seen by Sir John Davis, a Director of the Ford Motor Co. and manger of the Ford Estate at Boreham, Essex, who at the request of Henry Ford had tried to grow soya with American seed and had failed. At his request I agreed to supply acclimatized seed and to superintend its growing. All my four varieties of soya were used and under field conditions the crop was a success. From 2 acres the first year it was increased to 12 acres in 1934 and to 20 in 1935, the last two crops being grown without assistance. The Boreham trials were visited by farmers from every part of the United Kingdom and visitors from America pronounced the crops to be as good as any grown in that country. The seed was distributed in 1935 and that year saw it being grown in quantity in some hundreds of places throughout the British Isles."

A photo facing page 1 shows Mr. J.L. North standing in a field with soya bean plants which he has grown. Address: 60, Grove Park Terrace, Chiswick, London, W.4, Engalnd. Late curator, Royal Botanic Gardens, Regent's Park, London.

457. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report.*1936. Department of field husbandry. 61:74-81. For the year 1935. See p. 80.
• ***Summary:*** In the section on "Extension work" is a subsection (p. 80) titled "Soybean demonstrations" which

begins: “Nearly three hundred farmers have co-operated with the Field Husbandry Department in conducting soybean demonstrations since this work was undertaken a few years ago. In 1935 there were forty-seven acre-plots, of which twenty-nine were for seed production and eighteen for hay. They covered thirty-six counties. Reports from farmers who made the tests show an average seed yield of over 20 bushels per acre, and an average hay yield of 2 3/4 tons per acre.”

Note: W.J. Squirell, B.S.A. is professor and head of the department. O. McConkey, B.S.A., M.S., Ph.D., is associate professor. Address: Guelph, Ontario.

458. Dafoe, Allan Roy. 1937. Re: The Dionne quintuplets, dried soy bean milk, and soy acidophilus milk. Letter to Dr. John H. Kellogg, Miami-Battle Creek, Miami Springs, Florida, Jan. 4. 1 p. Typed, with signature on letterhead.
• ***Summary:*** Dr. Dafoe is the attending physician for the Dionne quintuplets. He thanks Dr. Kellogg for the shipment of fruit which arrived today. “Since writing you last you have also favored us with the dried soy bean milk and the gallon shipment of acidophilus, both of which, you may be sure, are appreciated.”

Note: On the letterhead is a photo of the five babies with their names printed under each: Yvonne, Cecile, Marie, Annette, and Emilie [spelled Emelie by Feb. 23].

On Jan. 27 Dr. Dafoe writes Dr. Kellogg requesting that he double the amount of acidophilus sent each week. On the letter is written by hand: “1 case been shipped weekly for 6 months.” Next to it is a stamp: “Approved–Jan. 29 1937. Credit Dept.”

On Jan. 29 Dr. Kellogg writes that he is sending a number of special foods especially designed for infants, made by his Battle Creek Food Company in Michigan. One of these is made from the soy bean. “It may interest you to know that the specimen of soy acidophilus milk which I sent you is particularly rich in vitamins B and G, containing 50 units per 10 grams of vitamin B and 90 units of vitamin G.” He then raises the idea of using a picture or pictures of the quintuplets in connection with the sale of these infant foods if is agreeable to the trustees of the Guardianship to do so.

In another letter of 29 Jan. 1937 to Hon. David Croll, Minister of Public Affairs, Parliament Buildings, Toronto, Ontario, Canada, he proposes the same idea, but now with a royalty payment: “We have an application from two other milk companies who desire to manufacture and distribute our soy acidophilus milk. We will be greatly pleased if you can see your way clear to quote us terms for a royalty arrangement.” Address: The Dionne Quintuplet Guardianship, Callander, Ontario, Canada.

459. Clay, Hilton. 1937. Pathfinder to plenty: Much of Ontario’s wealth of field crops comes from immigrants found and tested by Dr. Zavitz, and distributed through the Experimental Union. *Farmer Magazine (The): Eastern Canada’s Rural Magazine (Toronto)* 34(1):5, 16. Jan.
• ***Summary:*** This article focuses on Dr. Zavitz’s work with barley and alfalfa. “There is scarcely a farm in the more settled areas of that province [Ontario] which will not bear for decades to come green and living monuments to the deeds of Dr. Zavitz, O.A.C. varieties of wheat, of oats, of barley, of peas, of soy beans, now so extensively grown are largely the fruits of his scientific work.” “Today he lives in peaceful retirement in a rural home close to the place where he was born.”

Photos show: (1) A portrait of Dr. Charles A. Zavitz which hangs in War Memorial Hall at the Ontario Agricultural College. (2) A view of the field experimental plots at the College, the scene of most of Dr. Zavitz’s life work.

460. Kellogg, John Harvey. 1937. Re: Soy acidophilus milk, cottage cheese, and the Dionne Quintuplets. Letter to Dr. Allan Roy Dafoe, The Dionne Quintuplet Guardianship, Callander, ONT, Canada, Feb. 11. 2 p. Typed, without signature (carbon copy).
• ***Summary:*** Dr. Kellogg is sending Dr. Dafoe a box of oranges and other fruits, plus a new table showing the vitamin content of different foods. “I am also sending you a package of soy acidophilus cheese which resembles cottage cheese in appearance. It is made from soy acidophilus milk in essentially the same manner in which cottage cheese is prepared. With the addition of thick cream, sweet or sour, and if desired, a little salt, it becomes as palatable as ordinary cottage cheese and has the advantage that it contains a high percentage of *Lactobacillus acidophilus.* A count made today (February 11) shows 250 billion to the gram. I thought the quintuplets might like this for a change.

“If you will consult the table you will see that the soy bean is a good source for vitamin B and also one of the best of all known vegetable sources for vitamin G. This gives an additional value to soy acidophilus milk and other soy bean preparations.” Address: M.D., Battle Creek, Michigan.

461. Dominion Linseed Oil Co., Food Division. 1937. You’ll love this new bread! Acclaimed by scientists as the greatest nutritional advance in a generation (Ad). *Toronto Daily Star (Canada).* March 23. p. 30.
• ***Summary:*** A large ad for “Ful-Soy Bread.” “Every loaf guaranteed fully by this pioneer Canadian milling company whose products have set an unwavering standard of high quality for 75 years.”

“For centuries the world’s food scientists have recognized that Soy products could provide the greatest nutrition proportionately of any known foodstuff.” This bread is especially good for children, and fine for lunches–in part because it keeps fresh so much longer. As your baker

or grocer tomorrow for Ful-Soy Bread. Address: 587 Fleet St., Toronto. Phone: Elgin 9494.

462. Kellogg, John Harvey. 1937. Re: Vitamin content of soy acidophilus milk, and the Dionne quintuplets. Letter to Dr. Allan Roy Dafoe, The Dionne Quintuplet Guardianship, Callander, ONT, Canada, March 26. 2 p.
• ***Summary:*** "I received a letter a few weeks ago from the secretary of the Nutrition Department of the American Public Health Association of which I have been a member for more than 50 years, asking me to prepare a paper for the next meeting which is to be held in October. I have chosen as my subject 'Some of the Health Values of the Soy Bean.' Thinking you might be interested in some of the facts which I have embodied in the paper in relation to soy acidophilus milk, I am enclosing a few sheets from a manuscript which I am preparing which will be published later.

"I was much gratified to learn from the unpublished data recently sent me by Dr. Munsell of the U.S. Department of Agriculture that soy acidophilus milk contains six times as much vitamin G (anti-pellagra) and more than twenty times as much vitamin B as does cow's milk. The addition of a thousand vitamin A units of plant origin to each half pint gives it greater potency in vitamin A than the best dairy milk, fully double, in fact. The addition of B-Lac or lactose gives it a very close resemblance to mother's milk in every particular with a few points of slight superiority."

463. Kellogg, John Harvey. 1937. Re: Soy acidophilus milk. Letter to Dr. G. Efremoff, Totleben 2, Sofia VI, Bulgaria, April 8. 4 p. Typed, without signature (carbon copy).
• ***Summary:*** "I spend my winters now here in Florida on account of the more favorable weather. Here I do not take cold as I do at Battle Creek and consequently am able to do much more work. I do not stand the cold winters well because of weak lungs on account of tuberculosis which destroyed my left lung before I was 20 and left my respiratory organs in a susceptible state.

"I assure you I am most happy to know of the success which has attended your efforts to promulgate the ideals of biologic living in your country [Bulgaria]. You have certainly done a noble work. You will some time find yourself at the head of a great sanitarium.

"... Have you become acquainted with soy acidophilus milk and with methods of changing the intestinal flora? I am sending you with this a copy of a paper which you may publish in your journal if you wish. I am also sending you a couple of tubes of *Lactobacillus acidophilus* which I call soy acidophilus. You can make cultures of this and get a start in this same line if you wish. I have patented the product in this country,... It is really a wonderful product and proves of immense service in the treatment of all kinds of intestinal disease, particularly colitis, in which it is used by mouth and by enema. It needs to be taken in liberal doses two or three times a day and by enema, a half pint or so along with warm water and the juice of one or two lemons or a teaspoonful of lactic acid to each pint of water. It stimulates the colon to act and is wonderfully efficacious, clearing out the colon at once and planting the protective aciduric flora."

Dr. Dafoe is now feeding the Dionne quintuplets [in Callander, Ontario, Canada] about one pint each per day of soy acidophilus milk; Dr. Kellogg sends him 36 pints a week. "The Doctor sends me specimens for examination. We are keeping their acidophilus at 85 per cent of the intestinal flora." Address: Florida.

464. Holmes, Marie. 1937. Cooking chat: Artistic dishes delight Occidental when dining in Japanese manner. *Toronto Daily Star (Canada).* May 20. p. 36.
• ***Summary:*** Several weeks ago, the writer was served a complete, authentic Japanese meal at a Japanese restaurant in New York City. Sukiyaki was cooked at her table. Over the simmering vegetables, the waiter poured "some soy or shoyu sauce,..." Floating in her delicious soup was "a little flower of pink bean curd, and a slice or two of white mushroom." She finds that Japanese food is the most artistic in the world, and artistically served. "Since modern hostesses are turning more and more to dishes of other countries and, in fact, placing before their guests whole foreign menus," now is a good time to start learning about the dishes of Japan. The recipes for a Japanese menu are given, including: Beef sukiyaki (with "¼ cup soy sauce" and "1 square piece bean curd") prepared in a frying pan. Japanese directions for Miyako sukiyaki (seasoned with "shoyu sauce").

A small portrait photo shows Marie Holmes.

465. Libby, McNeill & Libby of Canada, Limited. 1937. Safer feedings for your baby with Libby's homogenized baby foods (Ad). *Toronto Daily Star (Canada).* May 20. p. 12.
• ***Summary:*** Near the lower right of this large ad is a section titled "6 balanced combinations (Ask for them by number). Homogenized Foods for Infants–Put up in the following combinations." No. 4 of 6 is: "Cereal Combination: Whole milk, whole wheat, soya flour."

"Libby's homogenized baby foods may be fed months earlier." "Fewer digestive upsets with Libby's homogenized baby foods." "Baby gets more nourishment with Libby's homogenized baby foods." Address: Toronto.

466. Megee, C.R. 1937. Soybean production in Michigan. *Michigan Agric. Exp. Station, Circular Bulletin* No. 161. 14 p. June.
• ***Summary:*** Contents: History, adaptation, and uses. A high protein emergency or annual hay crop. Digestible nutrients

and feeding value per acre of soybeans and other Michigan crops. Soybean oil meal. A supplementary protein feed. Soybeans for silage. A cash crop. Soybeans as a soil improving crop. Cultural practices: Varieties, time of planting, rate and methods of planting, inoculation. cultivation, harvesting for hay, harvesting for seed, threshing, storage of soybean seed. Industrial and commercial uses of soybeans: Soybean oil, soybean oil meal, dried beans, for human food.

"As early as 1902 and for 20 years afterwards, E.E. Evans of West Branch, Michigan, took an active part in introducing, breeding, and distributing varieties of soybeans. The Ogemaw is an introduction of Mr. Evans and is the result of a cross between his No. 6 Early Black and Dwarf Brown. Since 1918 the Michigan Agricultural Experiment Station has conducted numerous variety tests for both hay and seed production at East Lansing and at various points over the state" (p. 3).

Table 4, titled "Soybean variety adaptation" (p. 10) lists the following: Manchu, Ito San, Mandarin (Canada), OAC 211 (Ontario), Dunfield, Illini (Illinois), Mandell (Indiana), Sciota (Ohio), Cayuga (New York), Ogemaw (Early Michigan), Wisconsin Early Black, Virginia, Wilson, and Mammoth Yellow. For each variety is given the name, maturity, seed color, and adaptation. "The Manchu is the leading general-purpose variety for hay, seed, and commercial uses in Michigan."

Under "Industrial and commercial uses of soybeans," a table shows 10 industrial and food uses of soybean oil, 15 industrial and food uses of soybean oil meal (incl. diabetic foods, flour, crackers, soy milk, bean curd [tofu], soy sauce), and 12 industrial and food uses of dried beans (incl. roasted beans, coffee substitutes, soups, baked beans, boiled beans). "When soybeans are to be used as a green vegetable, the Easycook and Hahto are preferred because of their milder flavor." Address: Section of Farm Crops, East Lansing.

467. Bailey, C.F. 1937. Dominion Experimental Station, Fredericton, N.B. [New Brunswick]: Results of experiments 1931-1936 inclusive. In: Experimental Farms Reports 1930-1938, Branch Farm Reports (Eastern Edition). Ottawa, Canada: Canada Department of Agriculture, Dominion Experimental Farms. See p. 38-40.

• ***Summary:*** In the section on forage crops, the subsection titled "Annual Hays" (p. 38-39) notes that 90 lb of Mandarin soybeans yielded 2.02 tons/acre of hay and 90 lb of Wisconsin Black soybeans yielded 2.01 tons of hay. These soybeans were tested for 3 years, from 1934 to 1936. "The yields were not as large as those from either oats alone, the oat mixtures, or the millets. The hay, however, was of superior quality, as it had a high percentage of protein. By using straddles, this crop was readily made into hay... Oats, oat mixtures and soybeans were sown with an ordinary grain drill."

The next subsection, titled "Soybean," states: "While the widespread interest shown by farmers in New Brunswick in the soybean is largely due to the good results obtained in other provinces of Canada, and the United States, where the growing season is longer, results obtained at this station indicate that fair yields can be obtained in this section of New Brunswick. When the high percentage of protein in the soybean is taken into consideration, the possibilities of this crop seem well worthy of consideration.

"Early maturing soybeans have ripened satisfactorily every year. Medium early varieties usually ripen seed and they have produced the largest yields in favourable seasons... The late maturing varieties such as Manchu, Disco and O.A.C. 211 have not been suitable as a seed crop even in favourable years.

"For the three years 1933, 1934 and 1935, Manchu (Hudson) and Mandarin, two medium early varieties, yielded an average of 26.61 and 26.6 bushels seed per acre respectively. In the same period Wisconsin Black and Manitoba Brown, two early varieties, yielded 24.69 and 23.11 bushels per acre respectively...

"Manitoba Brown, which is the earliest variety tested, required 117 days to mature in 1933 and 1934, and 130 days in 1935. Also discusses varietal tests in 1935 and 1936, effect of inoculation on yield, effect of superphosphate on maturity, and the use of soybeans for hay.

Note: This document contains the earliest date seen for soybeans in New Brunswick, or the cultivation of soybeans in New Brunswick (1933). The source of these soybeans was probably other research stations in Canada. Address: B.S.A., Superintendent (of this station).

468. Baird, W.W. 1937. Dominion Experimental Farm, Nappan, N.S. [Nova Scotia]: Results of experiments 1932-1936. In: Experimental Farms Reports 1930-1938, Branch Farm Reports (Eastern Edition). Ottawa, Canada: Canada Department of Agriculture, Dominion Experimental Farms. See p. 36, 39-40.

• ***Summary:*** In the section titled "Forage Crops," soybeans are first discussed in the subsection titled "Annual Crops for Hay." Wisconsin Black soybeans were one of a number of crops tested; 90 lb were seeded. They "produced a crop of hay which was only fairly satisfactory, but further tests may show these to have some value as an annual hay crop."

The subsection titled "Soybeans for Seed" states: "Soybeans are a comparatively new crop in this province. They have been compared with other crops for annual hay purposes in another section of this report... Only the earlier varieties can be matured with certainty under conditions as they exist in this locality. Manitoba Brown, the earliest variety tested, has matured every year during the past four years, but it has not yielded quite so well as some of the

later maturing varieties, even though the later varieties had not entirely reached maturity when killed by frost. Wisconsin Black, which is about a week later in maturing than Manitoba Brown, has been successfully ripened.

"Mandarin is about as late a variety as is likely to mature and it cannot be depended upon every year. O.A.C. 211 is later than Mandarin and has ripened in favourable years only. Manchu has not matured in any year of the test.

"Manitoba Brown and Wisconsin Black are likely to be most satisfactory when full maturity is desired, although Mandarin has given a higher yield.

"Substantial increases in yield have been secured by inoculation of the seed, which indicates that the seed should always be inoculated unless the organism is known to be present in the soil." Address: Superintendent (of this station).

469. Clark, J.A. 1937. Experimental Station, Charlottetown, P.E.I. [Prince Edward Island]: Results of experiments 1932-36 inclusive. In: Experimental Farms Reports 1930-1938, Branch Farm Reports (Eastern Edition). Ottawa, Canada: Canada Department of Agriculture, Dominion Experimental Farms. See p. 31-32.

• ***Summary:*** Soybeans are discussed in the section titled "Forage Crops." "Soybeans and millet: Soybeans have been grown experimentally to determine their usefulness as a seed and hay crop. As these experiments have been conducted for the past few years only, definite conclusions cannot be drawn.

"A number of the varieties tested have never matured owing to the shortness of the growing season. Manitoba Brown and Wisconsin Black have matured every year, with yields of ripe beans varying from 10 to 21 bushels and 13 to 23 bushels per acre respectively. The yields were governed chiefly by the season and the fertility of the land. When cut before maturity, Manitoba Brown gave a yield of 4 to 6 tons of green material per acre, and Wisconsin Black, 6 to 8 tons. Mandarin matured seed in 1934 with a yield of 22 bushels per acre, and over a four-year period produced from 7 to 10 tons of green material per acre. In rod row trials, Manchu (Hudson) and O.A.C. 211 gave a larger green yield than Mandarin. In 1936, a field crop of Mandarin, O.A.C. 211 and Manchu (Hudson), seeded May 23, in rows 28 inches apart, were ensiled with the field crop of corn. The yields of soybeans were 9 tons, 1,882 pounds, 14 tons, 1,603 pounds, and 14 tons per acre respectively." Address: D.Sc., Superintendent (of this station).

470. Dominion Bureau of Statistics, Ottawa, Canada. 1937. Imports for consumption: Agricultural and vegetable products. *Trade of Canada.* Fiscal year ended March 31, 1936. See p. 283, 289, 299, 335, 340. [Eng; Fre]

• ***Summary:*** Table No. 37 (p. 283) gives figures (gallons and dollar value) for imports of soy sauce to Canada each year from 1932 to 1935 from United Kingdom, Hong Kong, China, Japan, Syria, and the United States. Total soy sauce imports (in gallons) were as follows: 1932 = 78,581. 1933 = 72,389. 1934 = 89,249. 1935 = 79,321.

Page 289 shows imports of soya beans in 1935 only from United Kingdom, Hong Kong, Japan, and United States. Some 259,460 lb of soybeans were imported worth $7,822. The main source country was Japan, followed by the USA.

Page 299 gives import figures for soybean oil in 1934 and 1935 from United Kingdom, China, Germany, Japan, Netherlands, and the USA.

Page 335 shows imports of soya bean cake and meal from 1932 to 1935 from United Kingdom, China, and USA.

Page 340 shows imports of soya bean oil (and peanut oil) for the manufacture of soap in 1934 and 1935 from the United Kingdom, China, Denmark, Germany, Netherlands, and United States. Address: Ottawa, Canada.

471. McClary, J.A. 1937. Experimental Station, Lennoxville, P.Q. [Quebec]: Results of experiments 1931-1935. In: Experimental Farms Reports 1930-1938, Branch Farm Reports (Eastern Edition). Ottawa, Canada: Canada Department of Agriculture, Dominion Experimental Farms. See p. 23-24.

• ***Summary:*** In the section titled "Forage Plants" there is a subsection titled "Soybeans." "The first experiments with soybeans at this station were conducted in 1924 and 1925. At that time the varieties of which seed was readily available were rather late in maturing, and, in the climate of this district, were of value only as a source of forage...

"With the introduction of early high-yielding varieties, of which the seed can be ripened in the average season at Lennoxville, experiments with soybeans were started in 1933. Results in the growing of the crop for hay were again unsatisfactory, but for grain or seed production excellent crops have been obtained.

"Under average conditions and with suitable varieties it would seem that yields of from 20 to 25 bushels may be expected in a normal season. Moreover, as the grain is an excellent high protein feed, and as the crop is suitable on a wide range of soil types, it is one that farmers throughout the district served by this station could grow to advantage.

"Variety Tests.–Of 4 varieties that have been tested for seed production, 3 have consistently ripened satisfactory crops. Manitoba Brown, which is the earliest, ripens usually about the 1st of September. The plants are about 18 inches high and seed is of a dark brown colour. Its average yield for the past 3 years was 24.67 bushels per acre."

Wisconsin Black has given a 3-year average yield of 29.40 bushels/acre and Mandarin has given an average yield of 28.03 bu/acre. "Of the 3 varieties, Mandarin is the most desirable, in that the seed is of value commercially for processing as well as for feeding purposes. It is too late,

however, for average conditions throughout this district." Dates of seeding are also discussed. Address: Superintendent (of this station).

472. Morse, W.J.; Cartter, J.L. 1937. Improvement in soybeans. *Yearbook of Agriculture (USDA)* p. 1154-89. For the year 1937. [67 ref]

• ***Summary:*** Contents: History of the soybean. World distribution and production. Utilization of the soybean (with chart). Improvement of soybean varieties. Methods in breeding: Natural and artificial crossing, mutations. Inheritance studies and cytology: Plant characters (flower, stem, pubescence, and foliage; height of plant and maturity; pod-bearing habit and pod characters; sterility, growth habit), seed characters (color of seed coat, hilum, and cotyledon; other seed characters), yield of seed. Disease resistance. Identification of genes and chromosomes. Selected references on genetics of the soybean. Appendix: 1. Workers identified with soybean improvement: United, States, foreign countries. 2. List of soybean genes (table). 3. Linkage of soybean characters (table). 4. Soybean varieties: Origin and varietal characteristics (table listing 101 named soybean varieties; for each is given the place and date of introduction or origin, days to mature, flower color, pubescence color, and seed characters {coat color, germ color, hilum color, seeds per pod, seeds per pound}, uses {dry-edible beans, forage, green-vegetable beans, grain}).

The section titled "History of the Soybean" states: "The early history of the soybean is lost in obscurity. Ancient Chinese literature, however, reveals, that it was extensively cultivated and highly valued as a food for centuries before written records were kept. It was one of the grains planted by Hou Tsi, a god of agriculture. The first record of the plant is contained in a materia medica describing the plants of China, written by Emperor Sheng Nung [sic, Shen Nung] in 2838 B.C. The crop is repeatedly mentioned in later records and it was considered the most important cultivated legume and one of the five sacred grains essential to the existence of Chinese civilization. Seed of the plant was sown yearly with great ceremony by the Emperors of China, and poets extolled its virtues. The records of methods of culture, varieties for different purposes, and numerous uses indicate that the soybean was perhaps one of the oldest crops grown by man."

Note 1. This is the earliest English-language document seen (June 2003) which states that: (1) The soybean was one of the "five sacred grains." (2) "The early history of the soybean is lost in obscurity." (3) The soybean was planted at an early date by "Hou Tsi, a god of agriculture." (4) The "soybean was perhaps one of the oldest crops grown by man." It is also the earliest document seen (June 209) in which William Morse mentions the mythical Chinese emperor "Sheng Nung" in connection with soybeans.

More broadly, this entire story linking Shen Nung with the earliest written record of the soybean, is completely incorrect. Yet because the story was written by Morse (highly regarded as America's leading authority on the soybean) in a USDA publication, it has unfortunately been repeated, and this source cited, again and again down to the present day (see Hymowitz 1970; Hymowitz and Shurtleff 2005).

Note 2. This is the earliest document seen (June 2003) in which the emperor's name is spelled "Sheng Nung."

Note 3. This is the earliest document seen (July 2007) in which William Morse tries to write an early history of the soybean in China. Unfortunately, he does not cite his sources.

The section titled "Improvement of soybean varieties" states: "In the United States, more than 50 percent of the acreage devoted to soybeans is used for forage and pasture; breeding work, therefore, has tended largely toward the development of varieties for hay, silage, and pasture. The development of such varieties as Virginia, Laredo, Otootan, Wisconsin Black, Manchu, Wilson-Five, Kingwa, Peking, and Ebony by selection from introductions has been the principal factor in the increased use and acreage.

"Beginning with 1929, the use of soybean seed by oil mills has led to a demand for yellow-seeded varieties of high oil content. Agronomists and plant breeders have attempted to meet this demand by making large numbers of selections from foreign introductions and locally grown varieties and by analyzing these for oil content. This has brought about the development of several superior oil varieties and has resulted in a large increase in production of beans for milling purposes. The most popular of these varieties are Illini, Dunfield, Mukden, Mandell, Scioto, Mansoy, Manchu, Mamredo, Delsta, and Mandarin. Results of analyses with more than 1,000 selections and varieties have shown a range of from 12 to 26 percent in oil content. From studies of the oil content of varieties grown in a given locality, it seems possible, from the breeding standpoint, to produce varieties high or low in oil, at least within the known ranges of variation exhibited by common varieties." (p. 1161-62).

Soybean varieties that have excellent flavor and become soft in less than 2 hours of cooking include Easycook, Bansei, Rokusun, Jogun, Chusei, and Sousei. These are "now in the hands of growers and seedsmen. Experiments by commercial firms have shown that these varieties are superior to commercial varieties for the manufacture of food products, such as bean flour, roasted beans, bean milk, and bean curd [tofu].

"In Japan, certain varieties of soybeans were found that were used solely as green shelled beans. Ranging in maturity from 75 to 170 days, many of these introductions, and selections from them, have been found especially promising for the various sections of the United States. The

vegetable soybean offers an excellent food of high nutritional value, especially in the fall when other green beans are lacking and in sections where the Mexican bean beetle prohibits the growing of garden beans. As a result of selection, cooking tests, and adaptation studies, eight green vegetable varieties–Hahto, Kura, Kanro, Hokkaido, Higan, Chusei, Sousei, and Jogun–have been introduced in various sections of the country" (p. 1163).

Photos show: (1) "The late Charles Vancouver Piper, agronomist, United States Department of Agriculture, 1902-26. Pioneer in the introduction and development of soybean varieties for United States conditions." (2) "Storage yard of a Chinese grain merchant near Kungchuling, Manchuria. More than 80 osier bins, each holding four cartloads of soybeans, were in this yard." (3) A Manchurian farmer and how he harvests, threshes and cleans soybeans by methods learned from his ancestors; comparison with modern U.S. machine harvesting. (4) "Millions of soybean oil cakes are stored in warehouses in Manchuria awaiting shipment to Japan, Chosen, China, and the East Indies, where they are used for fertilizing purposes and for cattle feed." A person looks up at the towering stacks. (5) Coolies loading large sacks of soybeans on a freighter for shipment to the oil mills of Europe. One man has hoisted a huge sack onto his back. (6) Five Manchurian farmers who have been awarded certificates and prizes for producing high-quality soybeans. (7) Twenty seeds of a natural soybean hybrid showing peculiar types of coloration. (8) Illustration (line drawing) of a soybean flower and its parts enlarged. Front view, side view, parts of the corolla (standard, wing, one of the keel petals), stamens, pistil. (9) A. Stems and pods of fasciated soybean plants; B. Determinate pod-bearing type; C. Indeterminate pod-bearing type. 10. Chromosome chart showing four groups of linked genes in soybeans.

A table (p. 1157) shows: "Increase in production of soybeans over an 11-year period, 1924-25 to 1935-36, inclusive, in the principal producing countries of the world" (Manchuria, Chosen [Korea], Japan, United States, Netherland India).

Soybean seed size (p. 1177): "The range in size of soybean seed varies according to the variety, each variety having its own typical seed size. Varieties and introductions tested at the Arlington Experiment Farm ranged in average weight of 100 seeds from about 4 grams for the smallest to about 40 grams for the largest." Address: 1. Senior Agronomist; 2. Assoc. Agronomist. Both: Div. of Forage Crops and Diseases, Bureau of Plant Industry [USDA, Washington, DC].

473. Morse, W.J.; Cartter, J.L. 1937. Improvement in soybeans: Appendix 1–Workers identified with soybean improvement in the United States and abroad (Document part). *Yearbook of Agriculture (USDA)* p. 1154-89. For the year 1937. See p. 1184-85.

• ***Summary:*** In the United States: (1) USDA Bureau of Plant Industry, Division of Forage Crops and Diseases: W.J. Morse, Washington, DC. W.M. Stuart, Jr., and C.H. Brinkley, Arlington Experimental Farm, Arlington, Virginia. J.L. Cartter, Urbana, Illinois. M.G. Weiss, Ames, Iowa. J.L. Stephens, Tifton, Georgia. T.F. Akers, West Point, Mississippi. R.E. Stitt, Statesville, North Carolina. H.A. Schoth, Corvallis, Oregon.

(2) State agricultural experiment stations (32): Alabama, Auburn: H.B. Tisdale. Arkansas, Fayetteville: C.K. McClelland. Stuttgart: G.C. Banks. California, Berkeley: W.W. Mackie. Colorado, Fort Collins: D.W. Robertson, A. Kezer. Delaware, Newark: G.L. Schuster. Florida, Gainesville: G.E. Ritchey. Belle Glade: A. Daane. Quincy: J.D. Warner. Georgia, Athens: J.R. Fain. Experiment: R.P. Bledsoe. Illinois, Urbana: C.M. Woodworth, W.L. Burlison, J.C. Hackleman, L. F. Williams. Indiana, La Fayette: G.H. Cutler, R.R. Mulvey, K.E. Beeson, A.H. Probst. Iowa, Ames: H.D. Hughes, J.B. Wentz. Kansas, Manhattan: J.W. Zahnley. Kentucky, Lexington: E.J. Kinney. Louisiana, Baton Rouge: J.P. Gray. Maryland, College Park: J.E. Metzger, R.G. Rothgeb. Michigan, East Lansing: C.R. Megee. Minnesota, St. Paul: A.C. Arny, W.M. Myers.

Mississippi, State College: W.R. Perkins, J.F. O'Kelly. Stoneville: H.A. York. Poplarville: J.C. Robert. Missouri, Columbia: W.C. Etheridge, C.A. Helm, B.M. King. New Hampshire, Durham: F.S. Prince. New Jersey, New Brunswick: H.B. Sprague. New York, Ithaca: R.G. Wiggans. North Carolina, Raleigh: C.B. Williams, R.L. Lovvorn. North Dakota, Fargo: A.F. Yeager. Ohio, Columbus: J.B. Park, P. Preston. Wooster: L.E. Thatcher. Oklahoma, Stillwater: B.F. Kiltz. Pennsylvania, State College: C.F. Noll, C.E. Myers. South Carolina, Florence: E.E. Hall. Tennessee, Knoxville: H.P. Ogden. Texas, College Station: E.B. Reynolds. Virginia, Blacksburg: M.S. Kipps. Williamsburg: R.P. Cocke. West Virginia, Morgantown: J.A. Rigney. Wisconsin, Green Bay: E.J. Delwiche. Madison: G.M. Briggs, B.D. Leith.

Foreign countries (6):

Australia (4): Department of Agriculture, New South Wales: Glenn Innes, S.L. Macindoe. Traftor: W.H. Darragh. Richmond: N.S. Shirlow. Sydney: H. Wenholz.

Canada (3, all in Ontario province): Central Experimental Farm, Ottawa: F. Dimmock. Dominion Experiment Station, Harrow: C.W. Owen. Agricultural College, Guelph: O. McConkey.

England (1): Royal Botanic Gardens, London: J.L. North.

Germany (3): Kaiser Wilhelm Institute, Manchberg: W. Rudorf. Südd. Soya-Institut, München: K. Baumeister. Soya-Institut, Mannheim: L. [Lene] Mueller.

Japan (Incl. Chosen/Korea) (6 stations): Imperial Agricultural Experiment Station, Tokyo: H. Terao.

Hokkaido Imperial Agricultural Experiment Station, Kotoni: V. Fujine and T. Hoshino. Saitama Agricultural Experiment Station, Ageo: T. Hasegawa. Central Agricultural Experiment Station, Suigen (Chosen [Korea]): I. Nagai. Central Agricultural Experiment Branch Station, Shariin (Chosen [Korea]): Y. Takahashi. Akita Agricultural Experiment Station, Akita: K. Adachi.

Manchuria (6 workers at 3 South Manchuria Railway Agricultural Experiment Stations). Kungchuling: Y. Nakamoto, S. Tsuda, M. Ishikawa, and K. Adachi. Hsiungyocheng: K. Hisatake. Kaiyuan: S. Kofuku. Address: 1. Senior Agronomist; 2. Assoc. Agronomist. Both: Div. of Forage Crops and Diseases, Bureau of Plant Industry [USDA, Washington, DC].

474. Schaefer, Victor A. 1937. Aperçu des bibliographies courantes concernant l'agriculture et les sciences connexes [A survey of current bibliographies on agriculture and allied subjects]. Rome, Italy: International Institute of Agriculture. 84 p. Index. 24 cm. Imprimerie de la Chambre des députés. [Fre; Eng]

• ***Summary:*** This book, written equally in French and English, won the Oberly Award for Bibliography in Agricultural Sciences in 1937. The author was born in 1906. The bibliographies are arranged by country, and within country alphabetically by title. Each work cited is accompanied by a summary/abstract, 3-17 lines long, in both French and English. The countries represented are listed alphabetically in French: Allemagne–Germany (52 citations), Argentina (2), Austria (1), Belgium (3), Bulgaria (1), Canada (1), China (1), Denmark (2), Egypt (2), Etats-Unis–United States (24), Finland (1), France and Colonies (24), Great Britain and Colonies (26), Hungary (2), India (2), Italy (8), Lithuania (1), Norway (1), Pays-Bas et Colonies–Netherlands and Colonies (6), Peru (1), Poland (4), Romania (3), Sweden (5), Tchécoslovaquie–Czechoslovakia (5), U.S.S.R. (15), Yugoslavia (2), International Institutions (16).

The top 6 countries in terms of the number of citations listed are: Germany 52, Great Britain and colonies 26, France and colonies 24, United States 24, International institutions 16, USSR 15. Address: USA.

475. Dominion Bureau of Statistics, Canada Dep. of Trade and Commerce. 1938. Directory of Chemical Industries in Canada. Ottawa, Ontario, Canada. See p. 28.

• ***Summary:*** Page 28: "Dominion Soya Industries, 2049 Harvard Ave., Montreal, PQ [Quebec]. Product: Soya bean flour."

Note: E-mail from Anne Marie Ford, Research Librarian, Statistics Canada. 2010. Jan. 27. This was the earliest listing she could find for this company in this directory. She also looked in the 1919, 1921, 1932, and 1938 directories. The entries in this volume of the periodical are as of Jan. 1, 1938.

476. *Toronto Daily Star (Canada).*1938. Toronto Chinese welcome W.C. Liu, Nanking emissary: Nationalist flag flies over Elizabeth St. while Orientals celebrate–Are informed Japanese is not cause of worry. Feb. 7. p. 9.

• ***Summary:*** More than 150 Chinese attended a dinner given by the patriotic league in the Asia Cafe. The men were in their western clothing, but the women wore gorgeous Chinese gowns. "It was a real Chines meal, not the chop-suey feast so familiar to Occidentals.

"Beside each guest was placed his soup bowl, his chop-sticks, his China spoon, his rice bowl, tea bowl and soya sauce, while the food was placed one dish at a time in the centre of the table..." A large photo shows Liu.

Note: Elizabeth Street was one of the main streets in Toronto's Chinatown until the late 1950s.

477. Stegman, Henry M. 1938. Lessons from the quintuplets. *Good Health (Battle Creek, Michigan)* 73(2):57. Feb.

• ***Summary:*** "No other children, not even of royalty, have excited so much attention as the little Dionnes of Callander, Ontario. There are recorded sixty other instances of quintuplet births but in none of these did all the infants survive." They speak French.

"The quintuplets have been taking soy acidophilus milk since their fourth month, when they were attacked by a very severe form of bowel trouble, to which they were highly susceptible. Because they were not being breast-fed by their mother, they had never received the protective germ which infants normally receive in the act of nursing. They had been fed with mother's milk from their fourth day, but mother's milk does not contain the protective germ. This is derived from the outer surface of the breast in the act of nursing."

478. Stoa, T.E. 1938. Soybeans–Have they a place in N. Dak. [North Dakota]? Suggestions to growers who may be wanting to try soybeans on their farms for the first time. *North Dakota Agric. Exp. Station, Agronomy Mimeo. Circular* No. 67. 3 p. April.

• ***Summary:*** Contents: Introduction. Soybeans for hay. How to grow soybeans. This short circular discusses the place of the crop and furnishes cultural directions. "Soybean production on farms in North Dakota is relatively new. Experiment Station tests which have been made show that in order to produce ripe beans for market only the earliest varieties can be used, and these may not always fully ripen before fall frost. Growing season temperatures, length of frost free period, and seasonal rainfall are factors that have an important bearing on production of this crop in North Dakota. Climatic conditions that favor corn production will

be favorable to soybeans, which means that soybeans will have a better opportunity to do well and ripen in the south-eastern counties than elsewhere in the state.

"Minsoy is the earliest yellow variety commercially available, yields relatively good but grows rather short and bears pods near the ground, making it a little more difficult to harvest efficiently. At Fargo, Minsoy usually blossoms in late July or early August. From 6 to 8 weeks more, depending upon the ripening temperature, are usually required after blossoming to bring the crop to maturity. Manitoba Brown is a few days earlier than Minsoy but shatters readily. Wisconsin Black blossoms a few days later than Minsoy and grows taller. Yellow beans have preference on the market. Habaro and Mandarin, yellow beans, are from a few to several days later than Minsoy, grow taller and are satisfactory when they can ripen completely. Varieties like Manchu and Illini are usually too late to ripen here." Address: Agronomist, Fargo.

479. Page, Nancy. 1938. Timely topics for housewives. *Toronto Daily Star (Canada).* Nov. 11. p. 31.
• ***Summary:*** Gives a recipe for fried canned shrimps seasoned with "one teaspoon soy sauce."

480. *Toronto Daily Star (Canada).*1938. See rise in beef demand due to cold weather. Dec. 31. p. 15.
• ***Summary:*** In the section titled "Feeds and grains" (with statistics supplied by the United Farmers Cooperative Co., Ltd. on the basis of yesterday's closing prices; Carlots delivered Ontario points), in the subsection on "Feeds" we read: "Cotton seed meal–$33.00 per ton.

"Soya bean oil meal–$32.50 per ton.

"Linseed oilcake meal–$40.00 per ton.

A little below this entry is another entry titled "Feeds" (f.o.b. warehouse, Toronto)."

"Soya bean meal–$32.00 per ton.

This is the earliest document seen in the *Toronto Star* (Dec. 2009) that mentions "Soya bean oil meal" (or "Soyabean oil meal"), or that mentions it as a commodity with a price. Address: Toronto.

481. Larose, P. 1938. The new textile fibres. *Manual of the Textile Industry of Canada (Montreal)* 10:85-88. (Chem. Abst. 33:7118). *

482. American Soy Bean Association. 1938. 16th annual meeting (leaflet). 1 p. Single sided. Undated.
• ***Summary:*** This leaflet indicates the location and menu for the 16th annual meeting of the American Soy Bean Association. The meeting was held in the Crystal Ballroom of Hotel Montrose, Cedar Rapids, Iowa. The menu included: "Salted soy nuts, cream of tomato soup, fruit cocktail, beef tenderloin steak, browned potatoes, string beans, soy Parkerhouse rolls, butter, apple, celery and egg salad, Vi-Tone ice cream, cake." The leaflet also lists the stores from which the soy products were purchased: "La Sierra Industries, Ontario, California; Madison Foods, Madison College, Tennessee; Petersen Bakery, Cedar Rapids, Iowa; Milqo Limited, Vi-Tone Company, Hamilton, Ontario, Canada; Hutchinson Ice Cream Company, Cedar Rapids, Iowa."

Note: The Vi-Tone Company of Canada made soymilk in malted and chocolate flavors. Ice cream was probably made from that soymilk for this occasion. We have no evidence that Vi-Tone ever made a commercial ice cream from their soymilk.

483. Dominion Bureau of Statistics, Ottawa, Canada. 1938. Imports into Canada for consumption, years ended March 31, 1933 to 1937: Agricultural and vegetable products. *Trade of Canada.* Fiscal year ended March 31, 1937.
• ***Summary:*** Table No. 37, titled "Imports into Canada for consumption, Years ended March 31, 1933 to 1937, shows: Imports of soy sauce–from United Kingdom, Hong Kong, China, Japan, Syria, United States (p. 287). It shows that 133 gallons of soy sauce with a value of $15 were imported from Syria in 1933, but none in 1934, 1935, or 1936.

Imports of soya beans *(Fèves de soja,* p. 288). Imports of peanut oil *(Huile d'arachide,* p. 303). Imports of soya bean oil *(Huile de soja,* p. 300).

Imports of soya bean cake and soya bean meal, for use exclusively in the manufacture of cattle food and of fertilizers (Included "Soya Beans" prior to April 1, 1934; to April 1936, p. 339.7).

Imports of soya bean oil meal, for use exclusively in the manufacture of cattle food and of fertilizers (From May 1, 1936, p. 339.8).

Imports of soya bean oil meal *(Tourteaux d'huile de fèves de soja)* and soya bean flour *(Farine de fèves de soja),* when imported by manufacturers of glues or adhesives for use exclusively in the manufacture of such glues or adhesives (From May 1, 1936, p. 339.9; Note: 5,600 cwt was imported from the USA only) [1 cwt = hundredweight = 112 pounds].

Imports of peanut oil and soya bean oil for the manufacture of soap, and peanut oil for canning fish (p. 344.1). Imports of soya bean oil for the manufacturing of soap (p. 344.5). Address: Ottawa, Canada.

484. Montreuil, J.E. 1938. Experimental Station, l'Assomption, Que [Quebec]: Results of experiments 1930-1936 inclusive. In: Experimental Farms Reports 1930-1938, Branch Farm Reports (Eastern Edition). Ottawa, Canada: Canada Department of Agriculture, Dominion Experimental Farms. See p. 17-18.
• ***Summary:*** Soybeans are discussed in the section on forage plants. "Soybeans: Soybeans for grain.–At the request of numerous farmers, commercial organizations and

agricultural county agents, the growing of soybeans was commenced in 1934 and continued in 1935 and 1936 with varying results. The two varieties grown in 1934 and 1935 were Manitoba Brown and Mandarin... Manitoba Brown produced 22.77 bushels and Mandarin 25.95 bushels of the beans per acre. In the case of both varieties the beans were of excellent quality... In this district Manitoba Brown would probably reach maturity in every normal year. Mandarin, however, cannot be depended upon to mature seed unless planted very early and on a warm soil. To make a success of soybean growing in this district, a variety having yellow seed and about as early in maturity as Manitoba Brown is necessary."

"Soybeans for hay.–In 1935, five varieties of soybeans were grown as a hay crop on a light sandy loam soil, fertilized with about 400 pounds of a 3-12-10 chemical fertilizer per acre. The beans were planted with a disk drill May 21 and were harvested a little too ripe for best quality fodder. The crop obtained was quite heavy but much more difficult to cure than clover or alfalfa without a great loss of leaves."

A photo shows Mandarin and Manitoba Brown soybeans varieties growing in rows in a field. Address: Superintendent (of this station).

485. **Product Name:** Soybean Oil, and Soybean Oil Meal (Named Double Diamond Soybean Oil Meal by 1952).
**Manufacturer's Name:** Toronto Elevators Ltd. Renamed Maple Leaf Mills in 1964.
**Manufacturer's Address:** Queens Quay, Toronto, ONT, Canada.
**Date of Introduction:** 1938. January.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** Ontario Retail Feed Dealers' Association. 1946. Year Book, 1944-45. On page 11 is a full-page ad for Toronto Elevators Limited, stating that they make soy bean meal.

Soybean Blue Book. 1947. p. 64. "Processors of soybeans–Canada: Toronto–Toronto Elevators Ltd., Queen's Quay."

*Soybean Digest.* 1951. Oct. p. 35. Canada's pioneer in the soybean crushing industry, Toronto Elevators Ltd. has been actively engaged in this field since 1938.

Soybean Blue Book. 1952. p. 94. 8 expellers, capacity 150 tons. N. Hexane solvent, capacity 150 tons. Storage capacity: 2,000,000 bushels. "Master" mixed feeds and pellets. Served by CN, CP RR [Canadian Pacific Railroad].

Soybean Blue Book. 1964. p. 94. The entry now reads: "Toronto, Ont.–Maple Leaf Mills, Ltd., vegetable oil division, 417 Queens Quay W. Phone 362-7131. Chairman of board, J.D. Leitch; asst. chairman of board, C.E. Soward... 8 expellers, capacity 150 tons; hexane solvent, capacity 150 tons. Storage capacity 4,000,000 bushels. "Double Diamond" soybean meal; "Master" mixed feeds and pellets. Note: This is the earliest document seen that mentions Maple Leaf Mills, Ltd.

Soybean Blue Book. 1968. p. 96.

Soybean Digest Blue Book. 1978. June. p. 118. Address: 365 Evans Ave., Toronto M82 5W7, Ontario.

Talk with Dave Buttenham, executive V.P. of Ontario Grain & Feed Assoc. 1997. Feb. 20. His association began publishing a trade directory/yearbook in 1944-45. In the first issue is an ad from Toronto Elevators Ltd. stating that they make linseed oil and meal and soybean oil and meal. He has a history from the Canadian Feed Industry Association that may discuss the early history of Toronto Elevators Ltd. The two main newspapers in Toronto in the late 1930s were the *Toronto Telegram* (probably the main newspaper then but no longer in existence; the University of Toronto library may have back issues) and the *Globe and Mail* (very active today). He will try to talk with several elderly men who were active in the Association in the early days. He also knows some people who were top people in Maple Leaf Mills. He thinks Maple Leaf Monarch was the oilseed division of Maple Leaf Mills.

Note: This is the earliest document seen (Sept. 2000) concerning ADM Agri-Industries or its ancestors in Canada.

486. Towle, R.S. 1938. Soybeans. *University of Wyoming, Sheridan Research and Extension Center, Annual Report.*
• ***Summary:*** "The same varieties of this crop were planted as last year. The stand was much better and there was a fair growth generally. Several varieties were ready to cut for forage between August 25 and September 1. Ogemaw and Manitoba Brown were harvested for seed August 29, Cayuga September 1, Macauley Manchu [sic, Macaulay Manchu] September 8, and New York Manchu September 28. New York Manchu yielded the most total forage 2,490 pounds per acre, cured weight, but yielded only 389 pounds per acre of grain. No. 65334 yielded the most grain, 587 pounds per acre, but only 1,660 pounds total forage... Varieties grown as a green vegetable produced well and matured the latter part of August." Address: Superintendent, Sheridan Field Station, Sheridan, Wyoming.

487. DeBoth, Jessie Marie. 1939. Advises planning to obtain well-balanced meals. *Toronto Daily Star (Canada).* March 16. p. 28.
• ***Summary:*** Miss DeBoth includes a recipe for Sub kum chop suey (with "1 tablespoon soy sauce").

488. DeBoth, Jessie Marie. 1939. Shows how meal may be 'whipped up' on little. *Toronto Daily Star (Canada).* March 17. p. 28.
• ***Summary:*** Miss DeBoth taught thousands who attended yesterday's session of The Star Cooking school. She

included a recipe for Egg foo yong [young, yung] that called for "soy sauce" as a seasoning.

489. *Eire Department of Agriculture Journal.*1939. The soya bean. 36(1):73-79. March.

• ***Summary:*** Contents: Introduction. Trials with soya beans in Ireland. Experiments in 1935. Experiments in 1936. County variety experiments with soya beans [in 1936]. Experiments in 1937. Experiments in 1938. Summary.

"Trials with soya beans in Ireland: Experiments in the growing of soya beans in this country were commenced at the Botanic Gardens, Glasnevin [suburb of Dublin], in 1923. A number of varieties were included in these trials, one being a variety acclimatised in England by the Curator of the Royal Botanic Society, London [J.L. North], and kindly supplied by him. From 1923 to 1928 the varieties tested gave poor results. In some instances the number of seeds harvested were less than the actual number sown.

"In 1929, small samples of seven varieties were obtained from the Curator, Royal Botanic Society. Of the seven varieties, four had been grown in England the previous year and the remaining three were obtained from Canada. The seed was sown in the Botanic Gardens, Glasnevin, and about 40 per cent. germinated. All varieties produced seed. Two of the Canadian varieties produced about the same number of seeds as were sown, while the third one produced only about one-eighth of the quantity of seed sown. The English varieties did better, but even the best of these produced only four times the quantity of seed sown.

"Seed selected from each variety of the 1929 crop was sown at the Botanic Gardens in 1930. The results were disappointing; none of the Canadian and only two of the English varieties produced seed... This result might be attributed to the season which was wet and unfavourable.

"In 1931 two varieties were obtained from the Curator, Royal Botanic Society. These were grown at the Munster Institute, Cork [about 200 miles to the south], and at the Botanic Gardens, Glasnevin. At the latter centre, one of the varieties produced about 50 per cent. more seed than was sown. The other variety was a failure and produced only a few ripened seeds. At the Munster Institute, although both varieties grew vigorously no seeds ripened.

"In 1932 a number of different varieties were sown at the Botanic Gardens, Glasnevein, but only two produced seeds, the others being complete failures.

"Trials were again conducted at the Botanic Gardens in 1933, but owing to the prolonged drought experienced that year the plants made little progress and failed to produce seeds.

"Experiments in 1935. In 1935, seed of four varieties acclimatised in England, was obtained through the courtesy of Fordson Estates Ltd., London. The four varieties, Black 'O,' Brown, 'C,' Green 'Jap' and Yellow 'J' were grown at each of the following centres:–The Agricultural School, Athenry, The Agricultural School, Clonakilty, The Cereal Station, Ballinacura, The Munster Institute, Cork, and at two centres selected by the County Dublin Committee of Agriculture.

"Half of the area under each variety was sown with seed inoculated with a culture of nitrogen-fixing bacteria. Note 1. Is this the first year that the soya beans grown in Ireland were inoculated?

The varieties were sown on May 2 at all centres. Details of planting and fertilizer use are given. All varieties germinated well. A frost in late May, just as some of the seedlings were breaking ground, checked the growth in some centres and killed the young plants in County Dublin. Cold weather in May and June led to slow growth.

"All varieties were harvested between 18th September and 19th October. The varieties Brown 'C' and Green 'Jap' ripened earlier than Black 'O' or Yellow 'J.' No difference was apparent at any centre with inoculated seed and those which were sown with untreated seed.

"The yields from all varieties were very low and showed considerable variation at the different centres. The variety Brown 'C' gave the highest average yield, 2 3/4 cwt per statute acre." Note 2. 1 cwt is a hundredweight, usually 112 lb. Thus Brown 'C' yielded 308 lb/acre.

"Experiments in 1936." The varieties Green 'Jap' and Brown 'C' were tested at most of the same centres as in 1935 so as "to provide information as to the effect on time of ripening and yield of seed of:–1. Dates of sowing. 2. Manurial [fertilizer] treatments. 3. Distance between rows. Details are given. "The yields obtained at all centres and from all plots were again very low; the highest average yield obtained did not exceed 5 cwts. per statute acre. The variety Green 'Jap' gave a higher average yield than Brown 'C' at all centres. The early sowings of both varieties gave the better result."

County variety experiments in 1936 with the basic four varieties in Counties Dublin and Wexford gave very poor results. The "highest average yield did not exceed 1 cwt. per statute acre at any centre."

"Experiments in 1937." The variety Green 'Jap' was tested at the same four centres as in 1936. "The object of the experiments was to ascertain the effect on time of ripening and the yield of seed of:–1. Dates of sowing. 2. Inoculation of the4 seed. 3. Manurial treatments." Details are given. "The returns from all plots were again very low; the highest got [gotten] at any centre was slightly under 3 cwts. per statute acre... The sowings from May 10th to May 20th were the most successful." Inoculation seemed to increase foliage which appeared to delay pod formation and harvesting, "with consequent damage to the produce" [soya bean production]. "The manurial treatments showed no material difference at any centre,..."

Experiments in 1938. Details are given "Yields from all plots were very low; the average yield was equivalent to about 1½ cwts. per statute acre."

"Summary. Trial with soya beans have been in progress in this country during the past sixteen years. During the course of the trials a number of acclimatized varieties were tested under varying conditions of soil and climate and with different manurial and cultural conditions. None of the varieties produced anything approaching an economic yield of beans, and the results of the experiments, in which the average yield was under 2 cwt. per statute acre, clearly indicate that the growing of soya beans in this country must be regarded as very far removed from being a profitable undertaking, and as offering no commercial possibilities in the future.

Note 3. This is best and most detailed document seen (May 2007) on the cultivation of soya beans in Ireland.

Note 4. This document contains the earliest date seen for the cultivation of soybeans in Ireland (1923, at the Botanic Gardens, Glasnevin, Dublin, 3.5 km / 2.2 miles north of Dublin's city center). The source of these soybeans was the Royal Botanic Society, London.

490. Black, M.A. 1939. Soya beans. *New Zealand J. of Science and Technology* 21(1A):46a-60a. June. [23 ref]
• ***Summary:*** Contents: Introduction. Description. Chemical composition. Utilization: Human food, stock food, industrial uses (paint, soap, glue, plastics). Production: General, agriculture, effect of temperature on yield, vernalization, acclimatization, soils and manures, inoculation, seeding, cultivation, harvesting, storage, conclusion. Appendices: A. Soya-bean oil. B. Soya-bean varieties tested in New Zealand. C. Prices. D. Average analysis of soya beans grown in new Zealand.

"Summary: Under existing conditions the growing of soya beans in New Zealand cannot be recommended because–(1) The climate is generally unsuitable. (2) The potential market for human food is negligible. (3) There is no internal commercial market, and no possible export market in competition with the main soya-bean growing countries. (4) For stock feed other cheaper and more certain supplies of forage and concentrates are available."

"Widespread interest has been aroused from time to time in New Zealand by reports of the amazing variety of products derived from soya beans... As long ago as 1915 the Department of Agriculture conducted successful experiments on the growing of soya beans, but the crop has not found favour with New Zealand farmers... In Western countries the chief food use of soya-oil is in the manufacture of margarine... In New Zealand some 27,000 gallons of decoloured and deodorized oil are used annually by bakers for shortening, and for greasing baking tins. For the latter purpose it is of value because it does not change colour under baking temperatures... Curiously enough, there is a soya-milk factory in Denmark, a great dairying country. Note 1. This is the earliest English-language document seen (Oct. 2003) that contains the term "soya-milk."

Industrial uses: "The chief industrial uses of soya-bean oil are in paint, varnish, soaps, linoleum and oilcloth, and printing ink. In paints the essential disadvantage of soya-oil is that it is a poor-drying oil, especially in comparison with linseed, perilla, and tung oils. This drawback can to a large extent be overcome by the use of cobalt driers, which, however, considerably increase the cost of the paint. Promising blends are being obtained with blends of perilla and soya oil..."

Tables 5 and 7 shows the average and range in the number of days to maturity, and the yields (1935-1938) for 14 soybean varieties tested in three seasons, two at Palmerston North, three at Ruakura, in New Zealand. In table 7, they are listed in ascending order of days to maturity: Manitoba Brown (128 days), Wisconsin Black (128), Cayuga (133), St. Annes (141), Mandarin, Manchu, O.A.C. 211, Black Eyebrow, Early Yellow, A.K. (Harrow), Henry Ford (a selection of A.K. grown at Ford's estate in England), Black Ontario, Laredo, Virginia (186 days). For each variety is given the days to maturity (average and range), yield in bushels per acre (average and range), and number of trials.

Appendix B lists the following 34 soya-bean varieties tested in New Zealand: A.K., Auburn, Biloxi, Bilton, Black Beauty, Black Eyebrow, Black Ontario, Cayuga, Chernie, Dixie, Early Brown, Early Yellow, Harbinsoy, Herman, Hollybrook, Illini, Ito San Laredo, Mammoth Yellow, Manchu, Mandarin, Manitoba Brown, Mikado, Morse, O.A.C. 211, Ogemaw, Otoxi, Sable, St. Annes, Tashing, Tokio, Virginia, White Non-shatter, Wisconsin Black. Of these, 13 selections were sent by Mr. N.P. Neal of Wisconsin, as being likely to suit New Zealand conditions. Also four English acclimatized varieties, known as Jap, C, J, and O, have been grown.

Note 2. This is the earliest English-language document seen (Sept. 2006) that contains the term "soya-oil." Address: Agronomy Div., Plant Research Bureau, Dep. of Scientific and Industrial Research, New Zealand.

491. Erdman, H.E. 1939. An appraisal of the movement to increase industrial uses of farm products. *Scientfic Agriculture (Ottawa, Canada).* Sept. p. 20-28. *

492. Morse, W.J. 1939. Soybeans–The world around. *Proceedings of the American Soybean Assoc.* p. 39-44. 19th annual meeting. Held 11-12 Sept. at Madison, Wisconsin.
• ***Summary:*** Contents: Introduction. Asia: China, Manchoukuo [Manchuria], Chosen (Korea), Japan, Netherlands Indies [Indonesia], Philippine Islands. Europe. Rumania. North and South America. Africa. Australia.

In Europe, production is presently "confined largely to European Russia, Bulgaria, Yugoslavia, Czechoslovakia, and Rumania. In Europe as a whole, slightly more than 3 million bushels of seed were produced in 1938, 80 per cent of which was produced in Bulgaria, Rumania, and Yugoslavia. The largest increase has been in Rumania, due chiefly to the fact that Germany, by guaranteeing purchases, has given a certain stability to cultivation... Russian scientists have for the past several years carried on extensive experiments with the soybean. At the present time the principal areas of cultivation are the Ukraine and certain regions in northern Caucasus.

"Previous to the World War, Europe absorbed about 50 per cent of the exports of soybeans from Asiatic countries, the largest of the imports being taken by the United Kingdom, with Denmark and the Netherlands taking the remainder. In the post-war period [after World War I] important changes took place, Germany taking first place as an importer and other nations entering into the international trade in the bean and its products. At present Germany still holds first place as an importer of soybeans, followed by Denmark, England, Sweden, and the Netherlands. Among other countries that have increased their imports are France, Norway, Latvia, and Italy...

In South America, soybeans are at the experimental stage. "Successful results have been obtained in Cuba, Argentina, Brazil, Chile, and in some parts of Mexico."

"Africa: Extensive experiments have been conducted with the soybean in various parts of Africa for many years but as yet it is an unfamiliar crop to the majority of African farmers. It has been successfully cultivated in the upland, midland, and coast districts of Natal and throughout Gambia, Sierra Leone, Nigeria, and the Gold Coast Colony. In the cotton and corn growing districts of Belgian Congo the soybean has been grown successfully for forage and food purposes. Results in all cases, however, indicate that more and better varieties, and improved methods of culture and harvesting are essential before the soybean becomes a factor of much economic importance in African agriculture. The crop is advised more as a crop for domestic use than the European market. It is of interest to note that in 1938 nearly 4 million pounds of soybean meal were used in native rations in the mine compounds of South Africa.

"Australia: Successful results have been obtained with a few American varieties in Victoria and Queensland, but thus far efforts to establish the soybean as a commercial crop have been disappointing. At the present time, however, more extensive tests are being conducted to obtain adapted varieties in order to produce beans on a commercial scale."

A table (p. 43) gives "Acreage, production, and imports of soybeans by countries (Compiled from official sources)," based largely on 1938 statistics. The countries are: Austria, Belgo-Luxembourg [Belgium], British Malaya, Bulgaria, Canada, China, Chosen (Korea), Czechoslovakia, Denmark, Estonia, France, Germany, Hongkong, Italy, Japan, Kwantung, Latvia, Manchoukuo, Netherlands, Netherlands Indies, Norway, Poland-Danzig, Rumania, Sweden, Taiwan (Formosa), United Kingdom, United States, U.S.S.R. (Russia), Yugoslavia.

Leading soybean producers are: China 217,192,000 bushels (1936), Manchoukuo 170,269,000 bushels, United States 57,665,000 bushels, Chosen 18,480,000 bushels, Japan 13,473,000 bushels (1937), Netherlands Indies 9,873,000 bushels (production minus seed for planting), U.S.S.R. 2,502,000 bushels, Rumania 1,804,000 bushels.

Leading soybean importers include: Germany 28,766,356 bushels (the world's largest soybean importer), Japan 27,796,787 bushels (#2 worldwide), Estonia 195,475 bushels, Latvia 86,347 bushels, and Poland-Danzig 19,106 bushels.

Note: This is the earliest document seen (Feb. 2005) concerning soybeans in Estonia. This document contains the earliest date seen for soybeans in Estonia (1938). Address: USDA Bureau of Plant Industry, Washington, DC.

493. Holmes, Marie. 1939. Cooking chat: Keep staff of life from becoming bore by making bread at home occasionally–Varieties include whole wheat, oatmeal, fruit and cheese. *Toronto Daily Star (Canada).* Nov. 4. p. 22.
• ***Summary:*** "To begin with, if you want light bread, you have to use some wheat flour in the mixture, either white wheat flour or whole wheat flour... Along with wheat flour, however, you can use part rye flour or oatmeal or soybean flour, whichever is preferred. These various flours offer a great deal of variety in both flavor and food value."

"To make soybean bread, use about half as much soybean flour as wheat flour, that is, four cups of soybean flour to eight cups of wheat flour. Here again the rule is to mix the flours well at the start and then proceed exactly as in making plain white bread."

"Many persons prefer whole wheat bread to white because it has more flavor and more of the food values of the wheat grain."

494. Hennefrund, Helen E. comp. 1939. The peanut industry: A selected list of references on the economic aspects of the industry, 1920-1939. *USDA Bureau of Agricultural Economics, Agricultural Economics Bibliography* No. 80. viii + 238 p. Nov. 28 cm. [641 ref]
• ***Summary:*** This bibliography was compiled under the direction of Mary G. Lacy, librarian at the Bureau of Agricultural Economics. Contents: Foreword, by Mary Lacy. Sources consulted. General. United States: General, Agricultural Adjustment Program, cost of production and labor requirements, grading and standardization, legislation, markets and marketing, mechanization, periodicals, Philippine Islands, statistics, storage, utilization (general, feed and its nutritive value, peanut butter, peanut oil).

Foreign countries: General, Algeria, Argentina, Australia, Belgium and Belgian Congo, Brazil, British Empire, British East Africa, British West Africa, Bulgaria, Canada, Ceylon, China, Colombia, Cuba, Denmark, Egypt, France, French West Africa (incl. Senegal, French Guinea), Germany, India, Indo-China, Italy, Japan and Manchuria, Malaya, Mexico, Morocco, Netherlands and Dutch East Indies, Palestine, Poland, Portugal and Colonies, Rhodesia, South Africa, Spain, Sudan, Sweden, Thailand (Siam), Tunis [Tunisia], Turkey, Union of Soviet Socialist Republics, Uruguay, West Indies (British), Yugoslavia.

Pages 1-145 contain 641 bibliographic references (partially annotated), arranged by subject as shown above. Pages 146-238 are indexes.

The Foreword notes: "This bibliography supersedes and brings up to date a typewritten list by Vajen E. Hitz issued in 1931 entitled 'The peanut industry: Selected references on the economic aspects of the industry... 1920 to date.' It contains references to books, pamphlets, and periodical articles relating to the economic aspects of the peanut industry in the United States and in foreign countries from 1920 through the first five months of 1939... Call numbers following the citations are those of the U.S. Department of Agriculture Library, unless otherwise noted. 'Libr. Congr.' preceding a call number indicates that the publication is in the Library of Congress." Address: USDA Bureau of Agricultural Economics.

495. Morse, W.J.; Cartter, J.L. 1939. Soybeans: Culture and varieties. *USDA Farmers' Bulletin* No. 1520 (Revised ed.). 39 p. Nov. Revision of April 1927 edition, further revised in 1949.

• ***Summary:*** Contents: History. Description. Distribution and production. Climatic adaptations. Soil preferences, Varieties (classified by length of growing season into 7 groups, and divided within each group into "Seed, forage, green vegetable, and dry edible" types). Description of varieties (describes 125 varieties). Preparation of the seedbed. Fertilizers and lime. Inoculation. Time of seeding. Methods of seeding. Rate of seeding. Depth of seeding. Cultivation. Soybeans in rotations. Soybeans in mixtures. Soybeans drilled in small grains. Cost of production. Insect enemies of soybeans. Soybean diseases. Other enemies of soybeans.

"History: Ancient Chinese literature reveals that the soybean was extensively cultivated and highly valued as a food centuries before written records were kept. The first record of the plant is contained in a materia medica describing the plants of China, written by Emperor Sheng Nung in 2838 B.C. Methods of culture, varieties for different purposes, and numerous uses are repeatedly mentioned in later records, indicating the soybean to be of very ancient cultivation and perhaps one of the oldest crops grown by man. It was considered the most important cultivated legume and one of the five sacred grains essential to the existence of Chinese civilization. Soybean seed was sown yearly with great ceremony by the emperors of China, and poets through the ages have extolled the virtues of the plant in its services to humanity.

"The soybean was first made known to Europeans by Engelbert Kaempfer, a German botanist, who spent 2 years, 1691-92, in Japan. Seed sent by Chinese missionaries was planted as early as 1740 in botanic gardens in France..."

"Distribution and production: The soybean is grown to a greater extent in Manchuria than in any other country in the world. It occupies about 25 percent of the total cultivated area and is relied upon by the Manchurian farmer as a cash crop. China, Japan, and Chosen [Korea] are large producers and the soybean is cultivated more or less also in the Philippines, Siam, Cochin China, Netherland India [later Indonesia], and India. In other parts of the world, particularly Germany, England, Soviet Union, France, Italy, Czechoslovakia, Rumania, Mexico, Argentina, Cuba, Canada, New South Wales, New Zealand, Algeria, Egypt, British East Africa, South Africa, and Spain, various degrees of success have been obtained."

The section on diseases discusses the following: Purple spot of seeds, bacterial blight, bacterial pustule, mosaic, wilt, brown spot, sunburn or aphid injury, downy mildew, pod and stem blight, anthracnose, sclerotial stem rot, frog-eye spots, and *Pythium* root rot.

A table (p. 6-7) shows different varieties of soybeans recommended for four different uses (seed, forage, green vegetable, or dry edible), classified by the length of the growing season. Green vegetable–Very early (100 days or less): Agate, Sioux. Early (101 to 110 days): Bansei, Chusei, Goku, Kanro, Waseda. Medium early (111 to 120 days): Fuji, Hakote, Hiro, Hokkaido, Jogun, Kura, Osaya, Sato, Shiro, Sousei, Suru, Toku, Willomi. Medium (121 to 130 days): Chame, Funk Delicious, Imperial. Medium late (131 to 140 days): Aoda, Hahto, Higan, Rokusun. Late (141 to 160 days): Nanda.

Dry edible–Early (101 to 110 days): Bansei, Chusei, Goku, Kanro, Waseda. Medium early (111 to 120 days): Hokkaido, Jogun, Osaya, Sousei, Suru, Toku, Willomi. Medium (121 to 130 days): Funk Delicious, Imperial. Medium late (131 to 140 days): Easycook*, Haberlandt*, Higan, Rokusun, Tokyo*. Late (141 to 160 days): Nanda. Note: All dry edible varieties except three (Easycook, Haberlandt, and Tokyo–which are followed by an asterisk (*)) are also included in the green vegetable group. But many in the green vegetable group are not included in the dry edible group.

Detailed descriptions of the following 125 varieties are given (p. 7-17): Agate, A.K., Aksarben, Aoda, Arksoy, Avoyelles, Bansei, Barchet, Biloxi, Black Beauty (same as Ebony), Black Eyebrow, Cayuga, Chame, Charlee, Chernie, Chestnut, Chiquita, Chusei, Clemson, Columbia, Creole,

Delnoshat, Delsta, Dixie, Dunfield, Early Green (same as Medium Green), Early Virginia Brown (same as Virginia), Early Wilson (same as Wilson), Early Wisconsin Black (same as Wisconsin Black), Early Yellow (same as Ito San), Easycook, Ebony, Elton, Fuji, Funk Delicious, George Washington, Georgian, Goku, Guelph (same as Medium Green), Habaro, Haberlandt, Hahto, Hakote, Harbinsoy, Hayseed, Herman, Higan, Hiro, Hokkaido, Hollybrook, Hongkong, Hoosier, Hurrelbrink, Illini, Ilsoy, Imperial, Indiana Hollybrook (same as Midwest), Ito San, Jogun, Kanro, Kingwa, Kura, Laredo, Large Brown (same as Mammoth Brown), Large Yellow (same as Mammoth Yellow), Late Yellow (same as Mammoth Yellow), Lexington, Macoupin, Mamloxi, Mammoth Brown, Mammoth Yellow, Mamredo, Manchu, Mandarin, Mandell, Mansoy, Medium Early Green (same as Medium Green), Medium Early Yellow (same as Ito San), Medium Green, Medium Yellow (same as Midwest), Midwest, Minsoy, Missoy, Monetta, Morse, Mukden, Nanda, Nanking, Norredo, Northern Hollybrook (same as Midwest), Ogemaw, Old Dominion, Oloxi (formerly Coker's Black Beauty), Osaya, Otootan, Ozark, Palmetto, Pee Dee (Coker's 31-15), Peking, Pine Dell Perfection, Pinpu, Richland, Rokusun, Sato, Scioto, Shiro, Sioux, Sooty, Sousei, Southern Green, Southern Prolific, Soysota, Suru, Tarheel Black, Toku, Tokyo, Virginia (selection {19186-D} from the Morse variety at Arlington Experiment Farm in 1907), Waseda, Wea, White Biloxi, Willomi, Wilson, Wilson-Five, Wisconsin Black, Woods' Yellow, Yelredo (a nonshattering selection, Coker's 319), Yokoten. Address: 1. Senior Agronomist; 2. Assoc. Agronomist, Div. of Forage Crops and Diseases; Both: USDA Bureau of Plant Industry, Washington, DC.

496. *O.A.C. Review.*1939. "When shall we three meet again?" 52(2):100-101. Nov. Alumni News section.
• ***Summary:*** "In this issue we are pleased to present a picture of the first O.A.C. graduating class at the time of their graduation. The degree of B.S.A. was conferred on these five men by the University of Toronto in 1888, and all five lived to distinguish themselves in later life." The five are: J.F. Fee, B.E. Paterson, John A. Craig, George C. Creelman, and C.A. Zavitz.

"C.A. Zavitz, on graduation, was immediately appointed experimentalist at the O.A.C., his work having to do with the improvement of field crops. He continued in this position until 1904, doing excellent work and getting wide recognition. His department was then christened the Department of Field Husbandry. It became a department of instruction as well as of investigation, and Mr. Zavitz was appointed Professor and head of department. He continued in this work and gave his whole active life to the service of the College and the Province. For his great accomplishments he was given honorary degrees by both Toronto University and the University of Western Ontario. After forty years of intensive work he retired in 1928. He spends his summers at his home at Poplar Hill, Ontario, and his winters at St. Petersburg, Florida. Of Dr. Zavitz it may be said that his hobby became his life's work and his life work his hobby, and he still spends many happy hours pursuing his hobby of experimentation with plants in a beautiful garden plot surrounding his home at Poplar Hill.

"A few weeks ago Mr. Paterson decided to visit once more his alma mater at Guelph, and, while there, conceived the idea of having a class reunion. He phoned his old classmate, John Fee, of Toronto, arranging for him to come to Guelph and for the two of them to go on to Poplar Hill and pay a surprise visit to Dr. Zavitz. Our photographer, Mr. Tolton, accompanied them so that we might have an up-to-the-minute photograph of the three old friends..."

Photos show: (1) The five young men in the first graduating class of O.A.C. (2) C.A. Zavitz seated at his desk showing his two friends, Fee and Patterson (standing behind him), a bunch of ripened carrot tops of a new strain which he has been developing in his garden; he has shaken out some of the seed on a piece of paper for their closer inspection. Address: Guelph, Ontario, Canada.

497. Dimmock, F. 1939. Soybeans. *Canada. Department of Agriculture, Farmers' Bulletin* No. 80. 22 p. Dec. Also called Canada. Dept. of Agriculture, Publication No. 660. Revision Pamphlet 155. Also in Plant Science Literature 11:06 (1940). [1 ref]
• ***Summary:*** Contents: Description of the soybean plant. Soil and climatic adaptation. Uses of soybean seed: Soybean oil, soybean meal, soybean flour. Uses of the soybean for forage and soil improvement. Varieties: Yields, varietal adaptation, protein and oil content of seed, size of seed, colour of seed, registration. Culture: Soil preparation, time of seeding, inoculation of seed, method of seeding, depth of seeding, cultivation, harvesting, threshing. Storage and marketing of seed.

In Canada, the "area devoted to the crop in 1938 probably did not exceed 20,000 acres, nearly all of which was in the province of Ontario. Small patches were being grown in Nova Scotia, Quebec, southern Manitoba and British Columbia. At the present time, investigations are under way in practically all provinces to determine the possibilities of the soybean in various parts of the Dominion." Address: Div. of Forage Plants, Experimental Farms Service, ONT, Canada.

498. Laughland, J.; Laughland, D.H. 1939. The effect of age on the vitality of soybean seed. *Scientific Agriculture (Ottawa, Canada)* 20:236-37. Dec. Also in Plant Science Literature 11(2):19 (1940).
• ***Summary:*** "Conclusions: If soybean seed is not more than three years old it will germinate satisfactorily although there

is a slight advantage in favour of new seed." You should not conclude that seed will germinate well because it looks good.

A table titled "The average germination of soybean seed in all tests over the three year period 1936-38" has 3 columns: Seed used, 3 field tests germination percent, and 7 indoor tests germination percent. The age of seed tested ranges from 1 to 8 years old. For seed one year old (previous year's crop) the numbers are 89.6% and 98.0%.

For seed two years old: 63.3% and 93.7%.

For seed three years old: 65.6% and 96.0%.

For seed four years old: 36.6% and 76.8%.

For seed five years old: 8.0% and 61.4%.

For seed eight years old: 0% and 0%. Address: 1. Crop extension specialist; 2. Undergraduate student. Both: Field Husbandry Div., Ontario Agricultural College, Guelph, Ontario, Canada.

499. **Product Name:** Tofu, and Fried Tofu.
**Manufacturer's Name:** Paris Tofu.
**Manufacturer's Address:** 237 Powell St., Vancouver, BC, Canada.
**Date of Introduction:** 1939.
**New Product–Documentation:** Talk with Peter Joe, owner of Sunrise Market Ltd., Vancouver. 1993. March 18. He has just talked with Joe Kwok Dong, whose father, Joe Gon Fung, started this tofu company at 237 Powell St. in Vancouver in 1939. Joe Kwok Dong, who is now in his late '70s and lives in Vancouver, went to college in the USA and speaks fairly good English (Phone: 604-327-8037). Peter Joe now runs this same company, which is presently named Sunrise Market Ltd. Concerning the company name: Joe Gong Fung went to Montreal, Quebec, and was taken by the fact that many French-speaking people he met there liked tofu. So he decided to give the company a French name. At that time there were very few Chinese in Vancouver, or in Canada. So he wanted to give the company a non-Chinese name. The company made both firm Chinese-style tofu and deep-fried tofu. Initially, the company got its soybeans from the Seattle area; its calcium sulfate coagulant was imported from China. When World War II started, the company was no longer able to import from China, so it purchased Plaster of Paris locally and burned it to make food grade calcium sulfate. One of the company's early employees was named Joe Lai Nam. The company was apparently not well managed as a business in the early years and was not making much money, so Joe Lai Nam took over as owner and manager. He moved the company to 378 Powell St. in about 1954-55. He ran the company for about a year, but his health began to fail. So in about 1955 Peter Joe's father, Leslie Joe, took over the company at 378 Powell St.

Note: This is the earliest known commercial soy product made by the company that became Sunrise Market Ltd. (later Sunrise Soya Foods).

500. *World Trade Notes on Chemicals and Allied Products (U.S. Dept. Commerce).*1939. Linseed and soybean oil production lower in 1938–Canada. 13(43):747-48. *

501. Fifty years of progress on Dominion experimental farms, 1886-1936. 1939. Ottawa, Ontario, Canada: J.O. Patenaude. 158 p. See p. 19-20, 80-81.
• ***Summary:*** The Dominion Experimental Farms System was inaugurated in 1886. Credit for the inception of the system goes largely to two men from London, Ontario, Hon. (afterwards Sir) John Carling, Minister of Agriculture (whose photo is shown), and Prof. (afterwards Dr.) William Saunders, the first Director. In 1884 Canada was facing the need of recasting her agriculture.

Institutions for agricultural service were already in existence. One at Rothamsted, England, called the "Mother of Experimental Stations," had been founded by Sir John B. Lawes as a private enterprise. [Note: It still exists in 1990 as Rothamsted Experimental Station, AFRC (Agriculture and Food Research Council) Inst. of Arable Crops Research, Harpenden, Herts. AL5 2JQ, England.] Field experiments commenced there in 1843. In Germany, "experimental farms began in Saxony in 1852 through the banding together of farmers to have plants and animals tested on a particular farm at less expense of time and money than by individual trial. They engaged a manager and when the work grew extensive asked for government aid. The German government investigated, approved and furnished aid not only for that enterprise but for others of a like nature. Within 30 years there were more than 80 German stations, nearly all of them more or less supported by government funds. France investigated the German system, reported favourably, and by 1878 had established 43 subsidized stations of her own."

The personnel has grown to some 1,400 employees.

"The United States had a system of land-grant agricultural colleges (some with experiment stations), established under the Morrill Act passed in 1862, though the Hatch Act, providing specifically for land grants to a system of state experiment stations, was not passed until 1887. Several states had acted before the passing of the Morrill Act, Michigan having the oldest agricultural college, dating from 1857.

"An institution built at Cirencester, England, in 1845, was in 1880 named by Her Majesty, Queen Victoria, 'The Royal Agricultural College.' The Downton Agricultural College, near Salisbury, was established in 1880."

"Beginnings in Canada: In Canada a school of agriculture, now affiliated with the faculty of Arts of Laval University, was established at Ste. Anne de la Pocatière in 1859. Experimental work was carried on in connection with the Ontario Agricultural College, founded in 1873."

An early strain of Mandarin soybeans is yellow-seeded and very productive. "More than 500 bushels of registered seed were produced in the Ottawa valley in 1935 and about 1,600 bushels in 1936. Numerous tests in Quebec and the Maritime Provinces have been conducted, many of which were successful, but still earlier varieties are required to provide a margin of safety. A new Ottawa selection ten days earlier than Mandarin, will soon be ready for distribution.

"Large numbers of soybean introductions have been tested at Harrow (Ontario) since 1923 and at Ottawa (Ontario) since 1928. Approximately 600 hybrid strains are grown at Ottawa annually... All are yellow-seeded."

An excellent map (p. 6), shows all the farms, stations, sub-stations, etc. in Canada. These include: In British Columbia–Saanichton, Smithers, Windermere, Agassiz, and Summerland. In Alberta–Lethbridge, Manyberries, Lacombe, Beaverlodge, Fort Vermillion. In Saskatchewan–Regina, Indian Head, Swift Current, Scott, Rosthern, Melfort. In Manitoba–Brandon, Morden. In Ontario-Harrow (very far south), Ottawa, Kapuskasing. In Quebec–Ste. Anne, Lennoxville, Normandin, Cap Rouge. In Nova Scotia–Nappan, Kentville. In New Brunswick: Fredericton. In Prince Edward Island: Charlottetown. Address: Ottawa, ONT, Canada.

502. *Toronto Daily Star (Canada).*1940. The beans which sank a ship. Jan. 22. p. 6.

• ***Summary:*** One of the most unusual stories to come out of the present [World War II] is told in a dispatch from San Francisco, California, about a ship which burst open because its cargo became wet.

A Danish liner, named the *Canada,* struck a mine then sank off the coast of England. "But it could have limped to port if its cargo of 8,000 tons of soya beans had not begun to swell with the inrush of water. They burst open the steel plates and the ship went down.

"The soya, or soya, or soja bean is one of the most remarkable plants known to man..."

In 1893 the soybean was first tested in Ontario at the Ontario Agricultural College (O.A.C.); in 1901 it was first distributed to Ontario farmers for co-operative tests. But only recently has it become an important crop in Ontario.

A soaked soybean weighs about 2.25 times as much as a dry one.

Note: The article mentions "Q-boats" used during the Great War [World War I]. Q-boats, also known as Q-ships, Decoy Vessels, Special Service Ships or Mystery Ships, were heavily armed merchant ships with concealed weaponry, designed to lure submarines into making surface attacks. This gave Q-boats the chance to open fire and sink them. The basic ethos of every Q-boat was to be a wolf in sheep's clothing.

503. Associated Seed Growers, Inc. 1940. A descriptive catalog of vegetables (No. 8): Asgrow. New Haven, Connecticut. 96 p. Jan. 23 cm.

• ***Summary:*** The Foreword (p. 1), dated 1 Jan. 1940, states: "Since the last general edition of our Descriptive Catalog of Vegetables was published three years ago, continued progress has been made in raising the standards of quality and appearance in vegetables for critical growers. Many changes from previous editions will accordingly be found in the following pages.

"The present catalogue introduces a species new to American growers: the edible soybean. Whether this will find general acceptance remains to be seen. Our own experience with the different varieties, however, has warranted us in making available seed of the soybeans listed on page 17." The section titled "Edible Soybeans *(Soja max)*" (p. 17) lists eight varieties of edible soybeans sold by the company, with a brief description of each and the number of days to green shelled beans: Bansei (90 days), Emperor (108), Higan (112), Hokkaido (98), Imperial (107), Jogun (95), Toku (85), Willomi (95). The text states: "In recent years many varieties of edible soybeans have been imported from the Orient by the U.S. Dept. of Agriculture and detailed studies on their adaptation to North American growing conditions have been made, mainly at the University of Illinois.

"As a result a number of varieties eminently suitable for table use in this country have been developed. The most promising of these, listed as follows, have been multiplied for seed on the Asgrow farms. They are very prolific, highly resistant to disease and insect pests, of attractive appearance and eating qualities when cooked and served similarly to Lima beans.

"The number of days refers to picking for use as green shelled beans; full maturity, for dry shelled beans, is reached about 30 days later."

At the bottom of this page is a wide photo of a "Seed field of Emperor Soybeans on one of the Asgrow farms."

Page 2 states: "Associated Seed Growers, Inc. Main office: New Haven, Connecticut. Breeders and growers. Consolidating: The Everett B. Clark Seed Co., Est. 1857. N.B. Keeney & Son, Inc., Est. 1860. John H. Allan Seed Co., Est. 1856. Cable address: Asgrow. Growing stations and principal warehouses at: Milford, Connecticut; LeRoy, New York; Sheboygan, Wisconsin; Green Bay, Wisconsin; St. Paul, Minnesota; Greeley, Colorado; Powell, Wyoming; Bozeman, Montana; Hamilton, Montana; Ronan, Montana; St. Anthony, Idaho; Rigby, Idaho; Filer, Idaho; Fairfield, Washington; Mt. Vernon, Washington; Salinas, California; Brooks, Alberta, Canada. Breeding stations at: Hamilton, Montana; Milford, Connecticut; Milpitas, California; Greeley, Colorado; Indianapolis, Indiana; Filer, Idaho; Alexandria, Louisiana.

The last page (p. 96) discusses: The Asgrow breeding and development program. Laboratory work. Research and service. Slogan: "Asgrow seeds are bred–Not just grown."

Note 1. This is the earliest document seen (March 1999, one of two documents) that mentions soybeans in connection with Associated Seed Growers, Inc., later renamed Asgrow Seed Co.

Note 2. This is the earliest document seen (March 1999) that uses the word "Asgrow" to refer to the name of a farm or a breeding and development program–in addition to a cable address.

Note 3. Soybeans are also offered in the company's May 1942 *Descriptive Catalogue of Vegetables* (No. 10). However soybeans are no longer offered in the March 1947 (No. 12) issue of this catalog.

Note 4. The L.H. Bailey Hortorium, Cornell University (Ithaca, New York) has an excellent collection of early catalogs and price lists from this seed company, including price lists from 1930 and 1931, *Descriptive Catalogue of Vegetables* (No. 1, 2 and 4), from January 1933, 1935, and 1937, and *Descriptive Catalogue of Vegetables for Canners* (No. 3), from January 1935, with a broken set extending to Jan. 1955 (No. 18). Address: New Haven, Connecticut.

504. Savarin Dutch Terrace. 1940. Where discriminating diners enjoy Sunday dinner (Ad). *Toronto Daily Star (Canada)*. Feb. 3. p. 27.

• ***Summary:*** Sunday's huge full menu, which is given, includes "Chicken chop suey with rice and soy sauce." The cost, with live music: $0.75. Address: Bay at Adelaide, Toronto.

505. Hudson Heights (Hudson): New Canadian soybean variety. 1940.

• ***Summary:*** Sources: McRostie, G.P.; Laughland, J. 1940. "Soybeans in Ontario." *Ontario Department of Agriculture, Bulletin* No. 407. 12 p. Feb. See p. 11. Description of varieties: "Hudson Heights (Hudson). A selection by T.B. Macaulay, Hudson Heights, Quebec. Seed yellow, small to medium size; hilum black; plant bunchy, medium height. A mid-seasonal variety, high yielder, suitable to localities having a medium to short growing season." Address: USA.

506. Kabott: New Canadian domestic soybean variety. 1940. Seed color: Yellow (straw), hilum pale.

• ***Summary:*** Sources: McRostie, G.P.; Laughland, J. 1940. "Soybeans in Ontario." *Ontario Department of Agriculture, Bulletin* No. 407. 12 p. Feb. See p. 9. Description of varieties: "Kabott. A selection from a Manchurian strain secured by the Central Experimental Farm, Ottawa, through Mr. R. R. Kabalkin. Recent tests of this variety at the Ontario Agricultural College show promising results. Seed yellow, medium large, hilum yellow; plant medium short, branchy; flower purple; suitable for seed and fodder in the shorter growing seasons in Ontario."

Dimmock, F. 1941. "Canada includes many excellent soybean acres." *Soybean Digest.* May. p. 5. "An active soybean research program has already resulted in the development of the following varieties: Mandarin (Ottawa), A.K. (Harrow), Kabott and Pagoda by the Dominion Experimental Farms, Dominion Department of Agriculture,..."

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 4. "Kabott–Canada Experiment Station."

USDA Production and Marketing Administration [Grain Branch]. 1948. "Soybean varieties: Descriptions, synonyms and names of obsolete or old and seldom grown varieties." Washington, DC. 25 p. Aug. See p. 9. "Kabott–Selection from a Manchurian introduction in 1933 by the Central Experiment Farm, Ottawa, Canada. Maturity, very early; pubescence, gray; flowers, purple; pods, two- to three-seeded; shattering, medium; seeds, straw yellow with pale hilum, about 2,300 to the pound; germ, yellow; oil, 18.2 percent; protein, 44.4 percent; iodine number, 132."

USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 13.

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 12-13. Kabott is in the USDA Germplasm Collection. Maturity group: 0. Year named or released: 1939. Developer or sponsor: F. Dimmock, Department of Agriculture, Central Experimental Farm, Ottawa, Ontario, Canada. Literature: 13, 14. Source and other information: From Ningan, Heilongjiang, China, by 1933. Prior designation: None.

Note from Dr. Richard Bernard, Univ. of Illinois. 1999. Sept. 9. The seeds of Kabott are quite large (27 gm per 100 seeds) and on that basis should probably be considered a vegetable type. Note: But 2,300 seeds per pound would be only 19.7 gm per 100 seeds. Address: USA.

507. McRostie, G.P.; Laughland, J. 1940. Soybeans in Ontario. *Ontario Department of Agriculture, Bulletin* No. 407. 12 p. Feb.

• ***Summary:*** Contents: Introduction. The plant. Uses: Hay, seed, straw, soybean meal, soiling crop, ensilage, soil improvement, soybean oil, other products. Feeding value. Climatic adaptation. Place in rotation. Culture: Soil, preparation of seed bed, manure and fertilizers, seed selection, inoculation, dates of seeding, methods and rates of seeding, depth of seeding, seasonal care, harvesting for

hay or seed, threshing, storing. Varieties. Description of varieties: Manitoba Brown (Brown, Ogemaw), Kabott (From Mr. R.R. Kabalkin in Manchuria), Mandarin, Cayuga, Minsoy, Hudson Heights (Hudson; a selection by T.B. Macaulay of Hudson Heights, Quebec), O.A.C. No. 211 (selected from the Habaro variety), Goldsoy, Quebec No. 92, Manchu, Illini. Soybeans in mixtures (with grains and grasses). Enemies of the soybean.

Concerning other food products (p. 3): "Soybean flour, which is made into bread, cakes and muffins, due to its very low percentage of starch, is of especial value as a diabetic food. Soybean milk, curd [tofu] and breakfast foods are products of this bean. Lecithin, a complex fatty material containing phosphorus and nitrogen, is also obtained from the soybean and is used in candy making. Green soybeans (probably green vegetable soybeans), dried beans and bean sprouts are used in many ways for the table."

Concerning varieties (p. 9): "Both Manitoba Brown and Brown are varieties which have been selected from Ogemaw which was introduced by E.E. Evans, West Branch, Michigan, 1902, as a supposed cross between Early Black and Dwarf Brown varieties. The Manitoba Brown is an early selection made at the University of Manitoba. All three are similar in appearance and may be described as follows: seed colour brown, medium to large in size, hilum chocolate; plant short, erect, bushy; flower purple. They are very early varieties suitable for seed and may be successfully grown in northern districts."

Concerning enemies (p. 12): "In Japan, according to reports, there are many destructive diseases which attack the soybean. In the United States, no pest has assumed any great economic importance, but there have been some losses due to rabbits, woodchucks, root rot, cowpea wilt and caterpillars. Forty-three years of experiments at the Ontario Agricultural College have shown little loss due to fungus and bacterial diseases, but some parts of Ontario have reported that groundhogs show a preference for this crop. This comparative freedom from plant enemies is a favourable factor in promotion of soybean culture in Ontario."

Note: This is the earliest document seen (Sept. 2004) that mentions the soybean variety Kabott. Address: 1. PhD, Prof. and Head of Dep.; 2. B.S.A., Extension specialist. Both: Dep. of Field Husbandry, Ontario Agricultural College, Guelph, Ontario, Canada.

508. *Madison Survey (Madison, Tennessee).*1940. Rapid growth of Madison health food production and consumption. 22(5):17-19. March 13.

• ***Summary:*** "When, the last of November in the year just past, a carload of health foods started for the Pacific Coast–the first shipment of that size–it seemed that a decided step had been taken in the advancement of the health food industry. Milo Frank, Los Angeles, is jobber distributor for the South Pacific. He services 250 health stores in California. The North Pacific region, Western Canada, and Alaska are served by Western Natural Foods, Seattle [Washington].

"Coming east, we find Health Food Jobbers, Chicago [Illinois], serving metropolitan Chicago; Sherman Foods, serving metropolitan New York; and Modern Foods, Wollaston, Massachusetts, serving metropolitan Boston."

Madison Foods' products mentioned in this issue are: Nutmeat, Soy Beans, Soyburger, Soy Cheese, Soy-Koff, Vigorost, Wheatasoy.

Periodicals mentioned include: (1) *Health News Reporter,* winter issue, 1939-1940. (2) *Health Foods Retailing* (Chicago), edited and published by Lelord Kordel; it is a bi-monthly trade journal for the health food industry.

509. Lloyd, J.W. 1940. The rise of edible soybeans. *Proceedings of the American Soybean Assoc.* p. 59-62. 20th annual meeting. Held 18-20 Aug. at Dearborn, Michigan. [1 ref]

• ***Summary:*** "Although the field-type soybean was introduced into the United States from the Orient a number of years ago, the vegetable-type was unknown in America until after the exploration trip in China and Japan by Dr. [sic] W.J. Morse, which extended from February, 1929, to February, 1931. The seed samples of many varieties were sent back to Washington by Dr. Morse and were planted at the Arlington Experiment Station [Virginia] in 1930 and 1931. Seed developed from these plantings was distributed for trial to various State Experiment Stations in the spring of 1934. The Illinois station had its first contact with the vegetable-type soybeans that season, and started a series of field and palatability tests including many varieties... Other midwestern experiment stations that have been giving attention to the vegetable-type soybeans are Indiana, Ohio, and Iowa."

The results of the Illinois tests were first published in March 1939 in Illinois Bulletin No. 453. "In this bulletin and in press notices concerning it, the announcement was made that small packets of vegetable-type soybeans for trial planting would be furnished upon request, as long as the available seed supply lasted. The response was a perfect deluge of requests for seed... Special interest was manifested in the vegetable-type soybean as a food suitable for diabetics, and many stated that they wished to grow the crop for that purpose. By the end of May [1939] seed had been sent to 2,096 persons–all who had made requests up to that time. Requests were received from 46 of the 48 states, from Hawaii and the District of Columbia, from 5 provinces of Canada and from 6 other foreign countries.

"At the end of the 1939 season, reports were received from 810 persons to whom seed had been furnished that spring. Almost 80 percent of those persons reported success in the production of the crop, in spite of drouth,

grasshoppers, rabbits, and other hazards. Approximately 70 percent of those who succeeded in growing the crop were enthusiastic about its table quality as a green vegetable... While tests by correspondents were limited mostly to the use of the soybeans as a fresh vegetable, a number reported successful canning of the product for winter use, while others allowed the beans to mature and reported them as highly satisfactory when used like navy beans." One company "is reported to have canned eight carloads of the finished product last year. Experimental work in canning and freezing of green soybeans is in progress on a comprehensive scale at two eastern experiment stations this season."

The Bansei variety is said to be especially well suited to the making of soybean milk. Yellow-colored varieties are said to make a superior grade of soybean flour. "The chief objection to the soybean as a home-garden or market-garden vegetable is the difficulty of shelling the beans by hand... Perhaps progress would be made in popularizing this product if the Oriental method of serving were adopted. This involves cooking the beans in the pods and letting each guest do his own shelling. Some Americans have tried this method and are well pleased with it. It involves more leisurely eating and would be especially appropriate at a banquet table."

"Previous to the spring of 1940, seed of vegetable-type soybeans was practically unobtainable by the general public. It was not offered under variety names by a single seedman so far as I am able to learn. Last spring, however, at least six seedsmen announced several varieties in their catalogs or price lists, and seeds were sold to a large number of planters."

Note: This is the earliest English-language document seen (June 2009) that uses the term "field-type soybean." Address: Univ. of Illinois, Urbana.

510. Morse, W.J. 1940. Soybeans around the world. *Proceedings of the American Soybean Assoc.* p. 72-74. 20th annual meeting. Held 18-20 Aug. at Dearborn, Michigan.
• ***Summary:*** The areas where soybean production has recently increased are the East Indies, Rumania, Austria, Bulgaria, Czechoslovakia, and Yugoslavia. "Soybean production in the Danube Basin in 1939 amounted to approximately 5 million bushels. The acreage in Bulgaria, Hungary, Rumania, and Yugoslavia increased more than 60% in 1940, this being attributed to the activities of two German companies which distributed selected seed and inoculation culture, and contracted in advance for taking the entire production at increased prices. The Greek government planned extensive cultivation of soybeans in 1940, providing for importation of seed, requiring compulsory cultivation of the crop, and the purchase of the entire crop from farmers at remunerative prices."

The increase in production has been largely due to the development of adapted soybean types through introduction, selection, and hybridization. "Soybean breeding programs have been carried on extensively in Germany, Russia, Netherland Indies, Rumania, Japan, Manchuria, South Africa, Canada, and some of the Balkan countries, and to a lesser extent in Sweden, England, Holland, France, Italy, Poland, Australia, India, and the Philippines."

"The outbreak of hostilities in Europe and the resulting interference with the flow of Manchurian soybeans into European markets brought about a rather critical situation to the producers in that part of the Orient. Moreover, Manchurian authorities on November 1, 1939, set up a soybean monopoly whereby the government purchases all soybeans for sale, fixes the price, and makes all export sales... Soybean exports from Manchuria for the first 8 months of the 1939-40 marketing year amounted to approximately 24 million bushels as compared with 59 million bushels for the corresponding period last season. Exports to Europe during the 8 months of this season were estimated at about 4 million bushels as compared with actual exports of 32 million bushels for the same months in 1938-39. About one million bushels were exported this year to Germany via Trans-Siberian Railway, and over 2.5 million bushels to Europe by sea, a major portion of which went to Italy.

"With practical cessation of direct shipments to European countries, Japanese and Manchurian officials began concentrating on the development of new industrial outlets for soybeans. The process of making usable protein from soybean material as a substitute for imported milk casein has been widely studied by government and industrial agencies in Manchuria and Japan. At present the principal ways in which soybean protein is substituting for milk casein are as glue for wooden articles, furniture, veneer, plywood, etc., paper sizing, as the adhesive element in insecticides and water paints, and as material for artificial wool and plastics. In 1938 more than 22 million pounds of soybean glue were used. A few Japanese companies have industrialized the manufacture of protein on rather an extensive scale. In Japan only one firm is reported to be producing soybean plastics, and these are not entirely satisfactory. Soybean fiber, or casein fiber as it is known in Japanese trade circles, is manufactured exclusively by one concern which sells its products to a spinning firm for making into yarn and cloth. The present capacity of the factory is about 22,000 pounds per day although actual daily production is said to be only about 13,000 pounds. The fiber known as 'Silkool' has not yet been exported. The domestic prices range from 33 to 35 cents per pound.

"A sample of 'Soyalex' recently received from Japan was said to contain not less than 60% pure lecithin. This new soybean product may be used in making butter,

chocolate, for dressing of leather, making of shoe polishes and toilet foods such as face creams and soaps, for cooking, making noodles and macaroni, and in the preparation of valuable chemicals." A portrait photo shows W.J. Morse.

Note 1. This is the earliest document seen (Jan. 2000) concerning the cultivation of soybeans in Sweden.

Note 2. This is the earliest English-language document seen (Dec. 2004) that uses the term "soybean fiber" to refer to spun soy protein fiber used like a textile fiber. Address: USDA Bureau of Plant Industry, Washington, DC.

511. Megee, C.R. 1940. Performance of early soybean varieties in Michigan. *Proceedings of the American Soybean Assoc.* p. 56, 58.

• ***Summary:*** "Early maturing varieties of soybean have been available in Michigan for many years. As early as 1901, Mr. E.E. Evans took an active part in introducing, breeding, and distributing a large number of varieties. The Ogemaw was a result of Mr. Evans breeding; maturing exceedingly early it produced seed in about ninety days.

"The early maturity ability of Ogemaw was obtained by sacrificing much in both forage and seed yield. This is true of many of the early maturing varieties and usually results in the variety failing to become of economic importance. The trend at present in the breeding of early maturing varieties is to maintain a high yield of seed and at the same time shorten the time required to maturity. Considerable progress is being made in this effort.

"Approximately 40% of the acreage of soybeans grown in Michigan is devoted to seed production, approximately 40% is used for hay, and 20% for soil improvement purposes and for pasture."

The southeastern corner of Michigan is the best. "The heat units in this area are the highest in the state, the soil is naturally highly productive and yields of from 20 to 45 bushels of seed per acre are frequently obtained." Competition from other crops is not severe and soybeans tend to equalize the distribution of labor.

One popular, early maturing variety for seed in this section is the Canadian selection of the Mandarin made by Mr. Dimmick of the Central Experimental Farm at Ottawa. The Manchu, Mandel, and Illini varieties are preferred for hay production. "The Manchu is the leading variety when the entire season can be utilized."

In 1939, soybean acreage in Michigan was fifteen times greater than it was in 1929. Address: Farm Crops Dep., Michigan State College.

512. Lloyd, J.W. 1940. Range of adaptation of certain varieties of vegetable-type soybeans. *Illinois Agric. Exp. Station, Bulletin* No. 471. p. 77-100. Dec.

• ***Summary:*** Contents: Introduction. Range of successful culture in Illinois. Successful culture in cool climates (of collection A–Giant Green, Bansei, Fuji, Willomi): Upper Mississippi Valley and the Northwest, New England, Iowa and South Dakota, performance at high altitudes. Performance of varieties in collection B (No. 80494, Jogun, Illington, Imperial): Central Illinois, Indiana, Ohio, Pennsylvania, Nebraska, Connecticut, Missouri, and New Jersey. Performance of varieties in collection C (Giant Green, No 80490-1, Emperor, Higan): Kansas, Missouri, Eastern states bordering the south (Kentucky, Tennessee, Maryland, Virginia, West Virginia), Southern States (North Carolina, South Carolina, Georgia, Arkansas, Texas), California, and Arizona. Performance in Canada and other outlying regions. Acceptability of vegetable-type soybeans. Demand for seed. Place in vegetable industry. Summary.

A map of the United States (p. 83) shows "Areas reporting successful growth of vegetable-type soybeans." Table 2, titled "Performance of four varieties of soybeans (Collection A) in cool climates, 1939" (p. 85) gives figures summarizing 265 reports (218 of which–82%–were successful) from the following states: Colorado, Idaho, Iowa, Maine, Massachusetts, Michigan, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, North Dakota, Oregon, Pennsylvania, South Dakota, Utah, Vermont, Washington, Wisconsin, Wyoming. Page 96 adds: "The vegetable-type soybeans were grown successfully in eleven California counties, distributed from Tehama in the north to San Diego in the south, and including both interior and coast regions... For the most part, the crops were grown under irrigation. One grower in Ventura county commented: 'They [vegetable-type soybeans] are now our favorite vegetable for fall, and I only wish they were a year-round crop... At the Agricultural Experiment Station at Tucson, Arizona, eight varieties... were grown under irrigation at an elevation of 2,400 feet. Planted June 12, all the varieties made satisfactory yields, Illington, No. 80490-1, and Emperor being especially prolific."

"A few observations on the range of adaptation of vegetable-type soybeans were included in Bulletin 453 of this Station, 'Eighteen Varieties of Edible Soybeans,' published in March, 1939. These observations were based on reports received from persons to whom seed had been distributed during the years 1935 to 1938 inclusive. The publication of this bulletin and press announcements regarding it contributed to the manifestation of a widespread interest in vegetable-type soybeans and resulted in the receiving of requests for seed from every state in the Union except two. There were also requests from five Canadian provinces and six foreign countries other than Canada. Persons living in 90 of the 102 Illinois counties requested seed.

"In response to these requests a total of 1,880 lots of seed were sent out from Urbana; 216 requests from the southern states were referred to W.J. Morse, of the U.S. Department of Agriculture, Washington, D.C., who had seed of varieties presumably better adapted to the South.

"The seed furnished most of these correspondents consisted of four packets, each containing approximately 100 seeds. Four varieties were represented, covering the season from early to late so far as possible with the seed available and with due consideration to the climatic conditions in the different parts of the country to which the seed was sent."

In Canada, early varieties were tested at St. George, Ontario; Central Experimental Farm, Ottawa; Barrington Passage, Nova Scotia; Bogot, Manitoba; Swift Current, Saskatchewan; Sea Island County and Westminster, British Columbia; Grand Falls, Newfoundland (49º north latitude, approximately. Planted in June, "the plants made a luxuriant growth but had not yet blossomed when killed by frost on Aug. 26). Varieties were also tested at Chihuahua, Mexico at 6,000 feet, and Honolulu, Hawaii.

Results based on reports received from 810 persons to whom samples of vegetable-type soybeans were sent in the spring of 1939: Had success in growing the crop: 78.8%. Liked the table quality 68.8%. Considered it a promising crop: 66.7%. Saved some seed for planting in the future: 76.5%. Main complaints: Difficulty in hand-shelling the green beans, and the readiness with which the mature beans shatter from the pods.

Note: This is the earliest document seen (Jan. 2010) concerning soybeans in Newfoundland province, Canada, or the cultivation of soybeans in Newfoundland. This document contains the earliest date seen for soybeans in Newfoundland, or the cultivation of soybeans in Newfoundland (June 1939). The source of these soybeans was the University of Illinois.

513. *World Trade Notes on Chemicals and Allied Products (U.S. Dept. Commerce).*1940. Adhesives, materials used in manufacturing, 1937 and 1938–Canada [soya bean flour]. 14(15):232. *

514. Blackeye: New U.S. domestic soybean variety. 1940.
• ***Summary:*** Sources: Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 8-9. Blackeye is in the USDA Germplasm Collection. Maturity group: I. Year named or released: 1940. Developer or sponsor: T.F. Ritchie, Dep. of Agriculture, Horticulture Div., Central Experimental Farm, Ottawa, Ontario, Canada. Literature: None. Source and other information: From Harbin, Heilongjiang, China, in 1934. Prior designation: None. Address: USA.

515. Royds, E. 1941. Soya beans. *Times (London).* April 7. p. 5, col. 5.
• ***Summary:*** This letter to the editor states: "Sir,–Mr. Hudson tells us to expect further reduction in rationing of livestock and cutting down in number–and Lord Woolton warns us of future food restrictions. Has it not now become imperative to grow The Magic Bean in this country?–food for man and beast and unquestionably the most valuable food plant in the world.

"Sir John Russell in a recent letter to *The Times* says this could be done–but that the yield of the crop would from Rothamsted experiments probably be only 6cwt. or 7cwt. [1 cwt = hundredweight = 112 lb] of grain an acre against a yield of 18cwt. or 20cwt. an acre of wheat or oats. This being so, even at this low level the nutritive value an acre of the bean crop would well exceed the value an acre of wheat or oats." [Note: 6½ cwt = 728 lb/acre = 12.1 bushels/acre or 818 kg/ha.]

"My society–formed for research and development on a non-profit basis–as a result of several years' experience confirms Sir John Russel's opinion, and thinks that suitable areas for a soya bean crop in this country could easily be found and that an extended area grown, coupled with continued and more intensive research, should result in an increased crop yield comparable with that in Canada where much the same methods have been adopted." Address: Chairman, British Soya Bean Growers Research and Development Society.

516. Jackson (Dr. Robert G.). 1941. Display ad: So you dare not drink coffee! *Toronto Daily Star (Canada).* April 15. p. 24.
• ***Summary:*** "Every day more and more coffee lovers buy Dr. Jackson's Kofy Sub because this delicious coffee substitute lets them sleep at night and never causes indigestion. Kofy Sub has rich, satisfying coffee flavour yet contains no caffeine, It is produced from cereal grains and soya beans; it is alkaline, nutritious, good for children. Easy to make the same way as coffee. Buy this inexpensive treat today.

"Know more about food and health. Send for free booklet 'A Glorious Achievement.' Address Robt. G. Jackson, M.D., 552 Vine Ave., Toronto.

"A Dr. Jackson product."

An illustration shows a box of Kofy Sub.

517. **Product Name:** Kofy Sub (Coffee Substitute).
**Manufacturer's Name:** National Soyabean Products Ltd. Subsidiary of Dr. Jackson Foods Ltd.
**Manufacturer's Address:** 552 Vine Ave., Toronto [Ontario, Canada].
**Date of Introduction:** 1941. April.
**New Product–Documentation:** *Toronto Daily Star* (Canada). 1935. "Report Toronto led industrial program:..." June 14. p. 18. "National Soyabean Products Ltd., a new concern, subsidiary of Dr. Jackson Foods Ltd., is installing machinery where it has taken space in the plant at 108 Vine St." Note: We do not know exactly when this factory began commercial production nor the names of its first products.

Display ad in *Toronto Daily Star* (Canada). 1941. "So you dare not drink coffee!" April 15. p. 24. "Every day more and more coffee lovers buy Dr. Jackson's Kofy Sub because this delicious coffee substitute lets them sleep at night and never causes indigestion. Kofy Sub has rich, satisfying coffee flavour yet contains no caffeine, It is produced from cereal grains and soya beans; it is alkaline, nutritious, good for children. Easy to make the same way as coffee... Send for free booklet 'A Glorious Achievement.' Address Robt. G. Jackson, M.D., 552 Vine Ave., Toronto. A Dr. Jackson product." Note: 552 Vine Ave. vs. 108 Vine St. Was the factory moved. Is one address the company headquarters?

518. Mann, H.H. 1941. Soya bean culture in Great Britain. *Nature (London)* 147(3735):660-62. May 31. [5 ref]
• ***Summary:*** The author is interested in knowing if it is possible to grow soya beans successfully on a commercial scale in Great Britain. All early experiments indicated that most of the available types of soya beans were of no use for seed production in Britain. "Attempts have been made, at least since 1914, to select suitable varieties, and the work of J.L. North at the old Royal Botanic Society's gardens in Regent's Park resulted in the production of types, several of which ripened in September or the beginning of October... Further, W. Southworth, previously of the Manitoba Agricultural College [Manitoba, Canada], settled at Rothamsted in 1932, bringing with him a type derived from the well-known American soya bean 'Ogemaw' and some others, and under his general supervision several of these and North's also have been grown almost every year since then at Rothamsted and Woburn. The results of these trials with some of the most promising types in existence have not been encouraging for the prospects of the soya bean as a commercial crop."

The soybean seems to demand three conditions which are not readily found in Great Britain: (1) The soya bean cannot be sown until serious danger of frost is over; (2) The soya bean crop seems to require a 'continental summer,' i.e. a period of high temperature while it is growing; (3) The time of ripening should not be later than the first week of October, preferably the last week in September.

"The possibilities for the future seem to depend on the development of types which yield more heavily in our climate than any of those tried hitherto and which are still early enough to ripen at least by the first week in October, and on finding cultivation methods that will give again a larger yield than those I have hitherto adopted. I am not unhopeful of the chances in both these directions, but a very great deal of work will be required before the cultivation of the soya bean can take a large part in ordinary farming practice, even in the South of Great Britain." Address: Dr., Woburn Experimental Station, Bletchley, England.

519. Dimmock, F. 1941. Canada includes many excellent soybean acres. *Soybean Digest.* May. p. 5.
• ***Summary:*** "Canada has won six world's championships for soybeans at Chicago in the last 9 years. This should certainly dispel any doubt which may exist concerning the ability of Canada to produce soybeans... At the present time, good crops of soybeans are being produced across Canada– in Ontario, southern Quebec, southern Manitoba, and British Columbia. Small areas in Nova Scotia have reported satisfactory yields, while experimental trials on irrigated land in southern Alberta have indicated possibilities in that region also...

"While little or no soybeans were grown in 1929, by 1940 it had reached only an estimated 12,000 acres, 10,600 acres of which were in the province of Ontario. Around 95 percent of the present acreage is harvested for seed, and not more than 15 to 20 percent of this is disposed of to the processing mills. There are two of these in Ontario. A new one is reported to be under construction in British Columbia. The bulk of the soybeans produced are fed to livestock on the farms on which they are produced...

"Ottawa Mandarin is the most commonly grown variety... An active soybean research program has already resulted in the development of the following varieties: Mandarin (Ottawa), A.K. (Harrow), Kabott and Pagoda by the Dominion Experimental Farms, Dominion Department of Agriculture, and O.A.C. No. 211 and Goldsoy by the Ontario Agricultural College, Guelph."

A table gives the average composition (protein and oil percentages, and iodine number) for soybeans grown in Canada at the following locations: Brandon, Manitoba; Lethbridge, Alberta; Agassiz, British Columbia; Harrow and Ottawa, Ontario; Lennoxville, Quebec; and Nappan, Nova Scotia. The highest protein content was found at Brandon (42.5%) and Harrow (42.1%), and the highest oil content at Lennoxville (22.9%) and Ottawa (20.6%). The highest iodine numbers came from Nappan (135.4) and Lethbridge (134.7).

Note: This is the earliest document seen (Oct. 2004) that mentions the soybean variety Pagoda. Address: Dominion Experimental Farms, Div. of Forage Plants, Ottawa, ONT, Canada.

520. Pagoda: New Canadian soybean variety. 1941. Seed color: Yellow (straw), hilum pale.
• ***Summary:*** Sources: Dimmock, F. 1941. "Canada includes many excellent soybean acres." *Soybean Digest.* May. p. 5. "An active soybean research program has already resulted in the development of the following varieties: Mandarin (Ottawa), A.K. (Harrow), Kabott and Pagoda by the Dominion Experimental Farms, Dominion Department of Agriculture,..."

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed

report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 7. "Pagoda–Canada Experiment Station."

USDA Production and Marketing Administration [Grain Branch]. 1948. "Soybean varieties: Descriptions, synonyms and names of obsolete or old and seldom grown varieties." Washington, DC. 25 p. Aug. See p. 14. "Pagoda–Selection from a cross of the Manitoba Brown and Mandarin varieties by the Central Experiment Farm, Ottawa, Canada. Maturity, very early; pubescence, gray; flowers, purple; pods, two- to three-seeded; shattering, medium; seeds, straw yellow with pale hilum, about 3,000 to the pound; germ, yellow; oil, 18.4 percent; protein, 43.8 percent; iodine number, 128."

USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 18.

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 16-17. Pagoda is in the USDA Germplasm Collection. Maturity group: 00. Year named or released: 1939. Developer or sponsor: F. Dimmock, Department of Agriculture, Central Experimental Farm, Ottawa, Ontario, Canada. Literature: 13, 14. Source and other information: Selected from 'Manitoba Brown' x 'Mandarin'. Prior designation: None.

"Modern soybean variety development using hybridization followed by selection began in 1939 with the release of Pagoda, developed by F. Dimmock at the Canada Department of Agriculture in Ottawa..." (Bernard et al., 1988, p. 1). Address: USA.

521. Hildebrand, A.A.; West, P.M. 1941. Strawberry root rot in relation to microbiological changes induced in root rot soil by the incorporation of certain cover crops. *Canadian J. of Research, Section C: Botanical Sciences* 19(6):183-98. June. [15 ref]
• ***Summary:*** The authors investigated the effect on strawberry root rot of turning into the soil a succession of cover crops of different types; a succession of soybeans (in 1939) greatly reduced root rot and at the same time significantly increased the bacterial balance. Address: 1. Asst. Plant Pathologist, Dominion Lab. of Plant Pathology, St. Catharines, Ontario, Canada.

522. West, P.M.; Hildebrand, A.A. 1941. The microbiological balance of strawberry root rot soil as related to the rhizosphere and decomposition effects of certain cover crops. *Canadian J. of Research, Section C: Botanical Sciences* 19(6):199-210. June. [26 ref]
• ***Summary:*** In the first of two papers, the authors investigated the effect on strawberry root rot of turning into the soil a succession of cover crops of different types; a succession of soybeans greatly reduced root rot and at the same time significantly increased the bacterial balance.

In this second paper they showed that this increase in the bacterial balance index was not due to any rhizosphere of living soybean roots, but to the decomposition of soybean tissue after incorporation into the soil. This beneficial effect of soybean residues was ascribed to promotion of a "carbohydrate type of decomposition" in the soil. Glucose (at a rather high rate, equivalent to 10% by weight of soil) was shown to exert a similar beneficial effect in controlling root rot and raising the bacterial balance index. Address: 1. Agricultural Asst., Div. of Bacteriology and Dairy Research; 2. Asst. Plant Pathologist, Dominion Lab. of Plant Pathology, St. Catharines. Both: Ontario, Canada.

523. *New Canadian (The).*1941. Shoyu supplies cut off–Local firm prepared to meet demand. Community consumes fifty thousand gallons annually. Aug. 22. p. 8.
• ***Summary:*** Mr. Teiichi Amano, head of Amano Bros. Ltd. makes Maruten brand shoyu bean-sauce, miso, and vinegar in his plant at 2141, 2135, 2131 Dundas Street, Vancouver, BC, Canada. In January 1941 he started to brew shoyu, which used to be imported from Japan before budget import restrictions took effect. It must age for 7-12 months. His soybeans are imported from California. For 12 years he has made miso and vinegar, and in Japan his father and grandfather made shoyu. Mr. Amano estimates that shoyu consumption in British Columbia exceeds 48,000 gallons/year. A photo shows the inside of the shoyu plant. Address: British Columbia, Canada.

524. Horvath, Artemy Alexis. Assignor to Soya Corporation of America (A corporation of New York). 1941. Soya palatability developing process. *Canadian Patent* 399,998. Oct. 14. *
Address: Chambersburg, Pennsylvania.

525. *Science and Culture (Calcutta).*1941. The use of soyabeans in Canada. 7(4):218. Oct.
• ***Summary:*** A brief overview. "Soyabean acreage in Canada has recently increased and there large numbers of small patches are grown by individual farmers for home consumption. In most of the cases the crop is grown to maturity with the intention of feeding the beans to livestock."

526. **Product Name:** Maruten Shoyu.
**Manufacturer's Name:** Amano Brothers.
**Manufacturer's Address:** 2141 Dundas St., Vancouver, BC, Canada.
**Date of Introduction:** 1941.

**New Product–Documentation:** The New Canadian. 1941. Aug. 22. p. 8. "Shoyu supplies cut off–Local firm prepared to meet demand. Community consumes fifty thousand gallons annually." An ad in the lower left corner shows the bold black Maruten logo, with the character meaning "heaven" *(ten)* in a circle *(maru)*. Amano Bros. Ltd. is at 2141, 2135, and 2131 Dundas St., Vancouver, BC. Phone: Highland 5526.

Shurtleff & Aoyagi. 1983. The Book of Miso. 2nd ed. p. 234. "There were several semi-commercial makers of miso and shoyu in Canada, in the Vancouver area, prior to World War I, and at least one commercial miso manufacturer was in the area prior to 1927. In that year Mr. T. Amano started Amano Brothers. In 1982 the T. Amano Co. was still making fermented shoyu." Talk with Michael Weiner. 1987. Dec. 16. Amano is presently the largest manufacturer of fermented soy sauce in Canada. They may soon break ground for a large new miso and shoyu plant.

527. Poupart, Roméo. 1941. Étude comparée de la caséine du lait, de la farine de soya et de la farine de gourgane et leur utilisation au point de vue de l'alimentation [Comparative study of the casein of milk, of soya flour, and of the broad bean / small garden bean / Windsor bean, and their utilization in foods]. MSc thesis, University of Montreal. 52 leaves. [Fre]*

• ***Summary:*** The casein of soya flour can be used to make tofu. Gourgane is also called *fève des marais* (broad bean). Address: Dep. of Chemistry.

528. Becker, Joseph A.; Froulich, Paul; Jackson, D.; et al. 1941. Agricultural statistics, 1941. Washington, DC: U.S. Government Printing Office. 731 p. For soybeans and soy products see p. 7, 299-305, 490, 494, 496, 519, 523.

• ***Summary:*** "This volume presents information formerly published (until 1935) in the statistical section of the Yearbook of Agriculture" (p. 1). "Export and import statistics of the United States include trade with the Philippine Islands. They also include any trade between foreign countries and Alaska, Hawaii, and Puerto Rico, but do not include shipments between continental United States and these possessions. Prior to January 1, 1935, the Virgin Islands of the United States were treated in the same manner as the Philippine Islands, but since that date the Virgin Islands are treated in the same manner as Alaska, Hawaii, and Puerto Rico." (p. 5). A bushel of soybeans weighs 60 lb and a gallon of soybean oil weighs 7.5 lb (p. 7). Note: No separate statistics are given for soybeans or soybean products grown in or exported to or from Alaska, Hawaii, Puerto Rico, or the Virgin Islands.

Table 392 (p. 299) gives U.S. soybean acreage statistics for the years 1924-1940, including: Acreage grown alone for all purposes, total acreage (incl. half the interplanted acres), acreage harvested for beans, yield per acre, production, price (dollars/bushel), farm value (in 1,000 dollars), foreign trade (imports and exports, year beginning in July). In 1924 for soybeans: Acreage grown alone for all purposes: 1,567,000. Total acreage: 1,782,000. Acreage harvested for beans: 448,000. Yield per acre: 11.0 bushels. Production: 4,947,000 bushels. Average price per bushel received by farmers: $2.46.

The corresponding figures in 1928 were: Acreage grown alone for all purposes: 2,154,000. Total acreage: 2,439,000. Acreage harvested for beans: 579,000. Yield per acre: 13.6 bushels. Production: 7,880,000 bushels. Average price per bushel received by farmers: $1.88.

Table 393 (p. 299) gives U.S. soybean production and farm disposition statistics for the years 1924-1940, including: Total production, used for seed (total, or home grown), fed to livestock, sold.

Table 394 (p. 300) gives U.S. soybean statistics for acreage, yield, production, and season average price received by farmers, by States, average 1929-38, annual 1939 and 1940. The states are: New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Nebraska, Kansas, Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas, and USA total.

Table 395 (p. 301) gives soybean statistics for acreage and production in specified countries, average 1930-34, and annual 1935 to 1940. The countries are China, Manchuria, United States, Chosen [Korea], Japan, Taiwan, Netherlands Indies, Rumania, Bulgaria, Yugoslavia, Hungary, and estimated world total.

Table 396 (p. 302) gives the average price per bushel of soybeans received by U.S. farmers each month and season average from 1930 to 1940.

Table 397 (p. 302) titled "Soybeans for seed" gives the average wholesale price per bushel at Baltimore and St. Louis, 1931-1941, each month from Jan. to May and average.

Table 398 (p. 302) titled "Soybeans for crushing" gives the average price per bushel, U.S. No. 2 Yellow, bulk, carlots, net track Chicago, 1933-40, each month from Oct. to Sept.

Table 399 (p. 303) gives statistics on amount of soybeans crushed, and production, imports, and exports of soybean oil (crude basis), and soybean cake and meal, USA, 1930-1940.

Table 400 (p. 303) gives the average price per pound of soybean oil (domestic crude) in tank cars, midwestern mills, 1929-1940, each month and yearly average.

Table 401 (p. 303) gives the average price per pound of soybean oil (domestic crude) in drums, New York, 1931-1940, each month and yearly average.

Table 402 (p. 304) gives the average price per ton of soybean meal (41% protein), at Chicago, 1930-1940, each month and yearly average.

Table 403 (p. 305) for soybeans and soybean oil, gives international trade (exports and imports), averages 1925-1934, annual 1938, 1939. For soybeans: Principal exporting countries–China, Manchuria, United States, total. Principal importing countries–Germany, Japan, Denmark, United Kingdom, Sweden, Italy, Netherlands, Canada, total. For soybean oil: Principal exporting countries–China, Manchuria, Denmark, Japan, Sweden, total. Principal importing countries–Netherlands, United Kingdom, Italy, Germany, United States, Belgium, Chile, France, Morocco, Norway, Algeria, Austria, Czechoslovakia, Canada, USSR, total.

Table 659 (p. 490) gives U.S. exports (in pounds) of vegetable oils (incl. corn, cottonseed, linseed, cocoa butter, coconut, peanut, and soybean oil) from 1914 to 1939.

Table 617 (p. 455) gives statistics on oleomargarine–materials used in manufacture, USA, 1924-1940. Concerning soybean oil: Less than 500 lb were used in 1924 and 1925, but 33,000 lb were used in 1926. The first significant amount was used in 1930: 2.25 million lb. Note: Additional statistics on oleomargarine production and consumption in the USA are given on p. 454-57.

Table 660 (p. 494) gives U.S. imports (in pounds) of oilseeds (incl. soybeans {but no data given for 1918-1926}, sesame seeds, rapeseed) and vegetable oils (incl. olive oil, palm oil, palm kernel oil, peanut oil, perilla oil, rapeseed oil, soybean oil, and tung oil) from 1914 to 1939.

Table 662 gives imports of principal agricultural products (incl. soybean and soybean oil) into the United States, by countries, each year 1932-1940. The source countries for soybean (p. 519) are: Kwantung, Japan, China, Germany, other countries, total. The source countries for soybean oil (p. 523) are: Kwantung, Japan, China, Netherlands, other countries, total. Address: U.S. Dep. of Agriculture, Yearbook Statistical Committee, Washington, DC.

529. *Census of Industry: Report on the Vegetable Oil Industry.*1941—. Serial/periodical. Ottawa, Canada: Bureau of Statistics. Annual. *
Address: Ottawa, Canada.

530. *Globe (Toronto, ONT, Canada).*1942. Dr. C. Zavitz, crops expert, dies, aged 78: Field Husbandry chief at O.A.C. for 41 years; known over Canada. March 18.
• ***Summary:*** A nice obituary of Charles A. Zavitz, with a small portrait photo. He was born in Lobo Township and attended secondary school at Strathroy High School. He graduated from the Ontario Agricultural College. The University of Western Ontario honored him a few years ago when it conferred the degree of LL.D. on him.

Dr. Zavitz retired in 1927 at the close of the college year, then took up residence at Poplar Hill. A private service will be held at the residence at Poplar Hill at 2:00 p.m. Thursday and will be followed by a service in the Friends' Meeting House, Coldstream, at 2:30 p.m. He will be buried in the Friends Burying Ground.

Another obituary, titled "Good citizen," states: He was "an unswerving believer in the value of science applied to agriculture. He had many friends, no enemies. The great talents with which nature had endowed him he returned a hundred-fold to his fellow men, for their good. What better epitaph could a man have than that?"

531. Dorland, Arthur G. 1942. Charles A. Zavitz. *Friends Intelligencer (Philadelphia)* Third Month 28. p. 206.
• ***Summary:*** "On Third Month 19th, a large assembly of relatives and friends gathered in the Quaker Meeting House at Coldstream to pay their last respects to Charles A. Zavitz, who passed away at his home in Poplar Hill in his 79th year.

"Charles Zavitz was a product of this pioneer Quaker community in Western Ontario. The roots of his spiritual and intellectual life were nourished on this soil and though he travelled widely during his active career, it was back to this native soil that he came to spend his last days among his old friends and neighbours."

"After his retirement to Poplar Hill, Charles Zavitz published a little booklet called, 'Spiritual Life', in which he recorded some of his personal thoughts and musings on spiritual themes, which are a characteristic expression of his life. Here is one brief extract:

"'Being a Quaker with Quaker parents, I learned early in life to listen in silence to the still small voice of my Spiritual Father. During and since my forty-one years of very active service in college, teaching, and in scientific research in agriculture, the Christ Spirit within me has been the most precious thing in my life.'"

Note 1. This article was later reprinted (with small changes) in the *Canadian Friend* and in the OAC Review, Vol. 54. Note 2. In Quaker "plain talk" January is "First Month" and Sunday is "First Day." Quakers don't attend Sunday School, but rather "First Day School." Friends also say "thee, thou, thine." Note 3. Dr. Dorland is a Quaker and Prof. of History at the University of Western Ontario. Address: Prof., Ontario Agricultural College, and intimate friend of Dr. Zavitz.

532. Oveson, M.M. 1942. Re: Trials with soybeans at the Sherman Branch Experiment Station, Moro, Oregon. Letter to Mr. E.R. Jackson, Extension Specialist in Farm Crops, Oregon State College, Corvallis, Oregon, April 23. 2 p.
• ***Summary:*** "In 1917, four varieties of soybeans were planted on May 19. The yield from this planting was as follows: Early Green 11.4, Ito San 10.5, Manchu 10.5, and Black Eyebrow 7.8 bushels per acre.

"In 1918 12 varieties were planted on May 4th. These 12 included the four mentioned above and 8 new varieties. Good stands were obtained but rabbits destroyed most of the plants and the trial was discontinued.

"In 1941 thirty five varieties were seeded on May 6th in 16 foot rows two feet apart. The yields from this seeding varied from 1.4 to 9.6 bushels per acre. Many varieties were late in maturing and would normally be caught by an early frost." F.P.I. 68488 harvested on Sept. 22 gave the highest yield, 9.6 bu/acre.

A table shows all varieties planted in May 1941, plus the date harvested and yield. The named varieties are: Illini, Mandarin, Mukden, Hudson Manchu, Manchu 606, Manchu 831-1, Montreal Manchu, McRostie Mandarin, Manchuria, Minsoy, Hahote [Hakote], Tastei [Tastee], Ontario, Sausei, Seneca, O.A.C. 211, Habaro, Bansei, Richland, Cayuga, Chief, and Giant Green. Thirteen varieties have only F.P.I. numbers.

Note: This is the earliest English-language document seen (Nov. 2004) that mentions the soybean variety Montreal Manchu (or "Manchu (Montreal)"). Address: Superintendent, Sherman Branch Experiment Station, Moro, Oregon.

533. *Canadian Friend.*1942. Obituary: Charles Ambrose Zavitz. 38(10):15-16. April.

• ***Summary:*** "The Society of Friends, not only in Canada but in the United State of America, and many English Friends as well, will be united in sorrow at the loss of Charles Zavitz, who died in his home at Poplar Hill on March 17th after a long illness."

"The establishment of the Canadian Friends' Service Committee was due largely to his interest and influence., and from the time of its inception until forced to resign because of ill-health, he acted as its chairman. No member of this general committee, nor of its large executive, but will remember with gratitude the spiritual atmosphere of these meetings, which was his constant aim, and which his chairmanship helped largely to bring about."

"His own Monthly Meeting at Coldstream will miss his presence sorely." His wife was Rebecca Wilson Zavitz. His son was Raymond Zavitz of Ottawa.

"Charles Zavitz was born in Lobo Township [near London, in the southern tip of Ontario] and received his secondary school education at nearby Strathroy High School [a public school]. He attended Ontario Agricultural College and received the degree of Doctor of Science from the University of Toronto. University of Western Ontario honored him a few years ago when it conferred the degree of LL.D. on him.

"He was Professor of Field Husbandry at the Ontario Agricultural College, Guelph, for forty-one years, and for much of that time was head of the department."

"His work in his own field was outstanding. Of him Dr. W. H. Muldrew, Dean of Macdonald Institute, wrote, 'A modest gentleman who has done more to pave the way for practical nature study than any man in Ontario'–and the *Toronto Globe* described him in 1904 as 'one of Ontario's greatest benefactors, who by the successful carrying out of a single experiment' (we believe in regard to the inbreeding of grain), 'has raised the production of Ontario farms over a million dollars a year in value.'

"At the outbreak of the first World War Dr. Zavitz was acting President of the Ontario Agricultural College, owing to the illness of Dr. Creelman. It is a matter of interest, and we feel of high honour to his memory, that though he immediately disassociated himself from all military activity of the College and offered to resign, he was urgently requested, not only by the Board of Governors, but by the student body, to continue in this position.

"One of my own most impressive experiences was to hear Dr. Zavitz speak of his anxiety since he had promised Dr. Creelman to carry on in his absence.

"'I walked all day about the fields,' he said, 'trying to know what I should do.'

"On the next day he called a meeting of the O.A.C. students. It is a scene one loves to picture. Very simply he told them his feeling in regard to war, and the impossibility of his taking any part in college activities which had to do with military matters. It must have warmed his heart (listening to his story one felt it did!) that they were so unanimous in desiring him to remain. There was still the Board of Governors to meet; but that was probably less of a trial, and had the same result.

"Dr. Zavitz retired at the close of the college in 1927, and then took up residence in Poplar Hill." Address: Prof., Ontario Agricultural College, and intimate friend of Dr. Zavitz.

534. Dorland, Arthur G. 1942. Charles A. Zavitz–An appreciation. *Canadian Friend* 38(10):5-6. April.

• ***Summary:*** This excellent obituary was first published in the *Friends Intelligencer* (Philadelphia, Pennsylvania) (28 March 1943, p. 206). It was later reprinted in the *OAC Review* (Vol. 54, April-May 1942, p. 409-10). Address: Prof., Ontario Agricultural College, and intimate friend of Dr. Zavitz.

535. Montreal Manchu: New Canadian soybean variety. Also spelled "Manchu, Montreal." 1942. Seed color: Yellow.

• ***Summary:*** Sources: Oveson, M.M. 1942. Re: Trials with soybeans at the Sherman Branch Experiment Station, Moro, Oregon. Letter to Mr. E.R. Jackson, Extension Specialist in Farm Crops, Oregon State College, Corvallis, Oregon, April 23. 2 p. A table shows all varieties planted in May 1941, plus the date harvested and yield. The named varieties

include “Montreal Manchu,” which was harvested on Sept. 16 and yielded 5.8 bu/acre.

Morse, W.J. 1948. “Soybean varietal names used to date.” Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 6. “Montreal Manchu–T.B. Macauley [sic, Macaulay] (Canada).”

USDA Agricultural Marketing Service. 1957. “Soybean variety names.” Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 “Rules and Regulations Under the Federal Seed Act.” See p. 17.

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. “USDA soybean germplasm collection inventory.” Vol. 1. INTSOY Series No. 30. p. 14-15. Manchu, Montreal is in the USDA Germplasm Collection. Maturity group: I. Year named or released: by 1944. Developer or sponsor: T.B. Macauley [sic, Macaulay], Montreal, Quebec, Canada. Literature: 13, 14. Source and other information: Selected from ‘Manchu’. Prior designation: None.

Letter from Richard Bernard, Dep. of Crop Sciences, University of Illinois. 2000. Jan. 26. Montreal Manchu is in the Soybean Germplasm Collection at the University of Illinois. “It was an early maturing selection from Manchu by T.B. Macauley of Montreal. I believe that he lived in a section (or suburb) of Montreal called Hudson Heights. We have another selection of his from Manchu named Hudson Manchu (apparently originated a few years before Montreal Manchu). It could be the one on your list called ‘Hudson Heights (Hudson)?’ They weren’t as particular about names (or about changing them) back then. Both Hudson Manchu and Montreal Manchu seeds have typical Manchu appearance, shiny yellow seed coat and black hilum.” Address: USA.

536. Dorland, Arthur G. 1942. Charles A. Zavitz–An appreciation. *O.A.C. Review* 54(7):409-10. April/May.
• ***Summary:*** This excellent obituary was first published in the *Friends Intelligencer* (Philadelphia, Pennsylvania) (28 March 1943, p. 206). It was later reprinted in the *Canadian Friend* magazine (April 1942, p. 5-6). Contains two photos of C.A. Zavitz.

537. *O.A.C. Review.*1942. Dr. C.A. Zavitz [obituary]. 54(7):409. April/May.
• ***Summary:*** “The professional work of Dr. C.A. Zavitz in crop improvement and in the general advancement of agriculture has long been well-known and has again been widely commented upon since his death on March 17th. Most of the references are to his work in the development of improved varieties of grains, and this can perhaps properly be looked upon as his main field of accomplishment. It should be remembered, however, that Dr. Zavitz investigated many other classes of crops and it will not soon be forgotten that his work with alfalfa alone was so outstanding and so far reaching that for many years he was popularly referred to as ‘Charles Alfalfa Zavitz.’ Then, too, he was one of the first to introduce soybeans in to Ontario, making an importation from the State of Kansas in 1894. Later he brought other varieties from Japan, China, and elsewhere in the east, and for more than thirty years devoted much attention to determining the best cultural methods for this crop in Ontario and to developing improved strains and distributing seed to farmers throughout the province.”

Note: This obituary a second, reprinted from the *Canadian Friend* magazine, titled “Charles A. Zavitz–An Appreciation,” by Arthur G. Dorland.

538. Watson, C.J.; Campbell, J.A.; Davidson, W.M.; Robinson, C.H.; Muir, G.W. 1942. Digestibility studies with ruminants. IX. Associative digestibility of grains: wheat bran, gluten feed and soybean oil meal. *Scientific Agriculture (Ottawa)* 22(9):561-70. May. [1 ref]
• ***Summary:*** Soybean oil meal, solvent processed, was fed to steers. Address: Dominion Dep. of Agriculture, Ottawa, Ontario, Canada.

539. Farrar, C.L. 1942. Soybean flour without pollen. *Gleanings in Bee Culture* 70:622-23. Oct.
• ***Summary:*** “I tried to locate a source of [soya] flour in Canada. Through the good offices of Mr. C.B. Gooderham, I located, I believe, the only manufacturer in Canada, Sun-Soy [sic, Sunsoy] Products, Limited, Toronto. They make only a full [fat] soya flour called Soyflakes which contains the full oil content of the soybeans, but extracting the bitter substance.”

“I would like to find out just the specific reason for not using the full soya flour having average fat content of 20 percent.” Address: Apiculturist, Madison, Wisconsin.

540. *Chatham Daily News (Ontario, Canada).*1942. Kent soy bean production leads province: County’s total output is one-third of yield for all of Ontario. Total value of crop is over a half million dollars. Dec. 22. p. 1.
• ***Summary:*** “Over one-third of the entire crop of 912,000 bushels of soy beans for the whole of the Province of Ontario was grown in Kent County this year, the county leading all 54 counties and districts with a total production of 307,917 bushels, it was revealed today in the monthly crop report of the Ontario Department of Agriculture.”

“The raising of soy beans is practically a new branch of agriculture for Canadians, particularly in Ontario.”

“The total value of Kent’s 1942 crop is placed at $535,776. The total Ontario crop is valued at $1,577,800.”

541. Poupart, Roméo. 1942. Étude de la fermentation du lait protidique de gourgane en vue de son utilisation dans

l'alimentation [Study of the fermentation of protein-rich milk of the broad bean / small garden bean / Windsor bean, in view of its utilization in foods]. MSc thesis, University of Montreal. 55 leaves. [Fre]*
• ***Summary:*** This milk can be used to make tofu. Gourgane is also called *fève des marais* (broad bean). Address: Dep. of Chemistry.

542. **Product Name:** Breakfast Foods (Called Soywheat, and Soyota in 1958).
**Manufacturer's Name:** Soy Products Co.
**Manufacturer's Address:** 7 Seventh St., Des Moines 9, Iowa.
**Date of Introduction:** 1942.
**New Product–Documentation:** USDA Bureau of Plant Industry. Div. of Forage Crops and Diseases. 1942. Firms manufacturing or handling soybean food products. p. 1. This company is listed as making or handling a "breakfast foods."

Soybean Blue Book. 1947. p. 69. Not clear what type of food this is. Soybean Blue Book. 1958. p. 82. Also listed in 1965.

Note: Soyata was a high protein bread containing whole soy flour made by Moirs Ltd. in Halifax, Nova Scotia, Canada, and introduced by April 1936.

543. Canadian Pacific Railway Co., Dep. of Colonization and Development 1943. Toronto, Ontario. *Agricultural and Industrial Progress in Canada.* 25(2):29. Feb.
• ***Summary:*** "Over one-third of the entire crop of 912,000 bushels of soybeans for the whole of the Province of Ontario was grown in Kent County last year, this division leading all 54 countries and districts with a production of 307,917 bushels. Due to the increasing demand for the beans and the success met with, it is expected that Kent farmers will produce a far greater crop this year."

544. **Product Name:** [Soya Flour].
**Manufacturer's Name:** Continental Soya Co.
**Manufacturer's Address:** Lachine, Quebec.
**Date of Introduction:** 1943. March.
**New Product–Documentation:** J.L. Doig. 1943. *Soybean Digest.* March. p. 6. "Life raft ration." Floya Milling Co. in Quebec, Canada, was looking for a source of soya flour to make a concentrated food for the Canadian Navy. "Ordinary soya flour was found unsuitable, but a specially processed flour was finally produced by Continental Soya Co. of Lachine [Quebec], which proved just right." Note: Lachine is located 8 miles southwest of Montreal on the St. Lawrence River.

545. Doig, James L. 1943. Life raft ration: Canadian Navy adopts soy. *Soybean Digest.* March. p. 6, 14.
• ***Summary:*** Concentrated rations were issued to German troops as early as 1930, and soya flour were one of the main ingredients. In about 1936 reports began to trickle out of Germany about so-called "Nazi food pills" in the form of lightweight concentrated biscuits. Each biscuit was oblong in shape, about 3 inches by 2 inches by ¼ inch thick. It contained 330 calories per 100 gm, 10% moisture, 22% protein, 22% fat, 44% carbohydrates, and 2% ash.

The author helped to develop a lifeboat and raft ration now used by the Canadian navy, stored in a sealed can, composed of 12 biscuits, 2 chocolate bars, and 12 milk chocolate tablets. The source of protein in the biscuits was soya four, especially processed by Continental Soya Co. of Lachine, Quebec, Canada. Feeding tests with rats showed the biscuits to constitute a balanced ration. "The biscuit is now ready to be produced commercially." It will be released under the name "Soycrisp" as soon as facilities for its manufacture are available. Address: Floya Milling Co., Montreal, Quebec, Canada.

546. Canadian Pacific Railway Co., Dep. of Colonization and Development 1943. Soybeans. *Agricultural and Industrial Progress in Canada.* 25(5):75. May.
• ***Summary:*** "The main purpose of increasing the acreage and production of soybeans in Canada is to provide more vegetable oil, which is urgently needed. In order to fulfill this purpose, soybean growers have been asked to see that their beans are delivered to the mills for the oil to be extracted. There is much to be gained by doing this, for, in addition to the high cash value of the crop itself, it has been demonstrated that soybean oil meal has a higher feed value for livestock than the beans themselves. Obviously, say agricultural authorities, the first thing for a grower to do is to put aside sufficient seed for an increased acreage. The remainder of the crop should go to the mill in preference to retaining any portion of it for feed purposes.

"Some growers have for many years used soybeans in livestock rations and with reasonably good results. Much work has been done in recent years, however, to determine the value of the beans in comparison with soybean oil meal as a feed for the various classes of livestock, including dairy cattle, beef cattle, sheep, hogs and poultry. The results have almost invariably been in favour of the oil meal, and the principal reason is that in the oil extraction process the protein of the beans is heated and partially cooked and this makes it both more palatable, more digestible and therefore more efficient. For pigs and poultry whole soybeans are quite unsatisfactory, but the meal can be fed to great advantage. One of the great disadvantages of the beans as feed is, of course, the oil content, which is too high for animals to use efficiently. That is another reason why the proper extraction of the oil makes the meal a better and more satisfactory feed to use. In sending the beans to the mill, therefore, a double purpose is accomplished: the

extracted oil becomes available for war purposes, and a better feed is made available in the form of the meal."

547. *Toronto Daily Star (Canada).*1943. Market sidelights: Vegetable oil processing. Sept. 13. p. 10.
• ***Summary:*** "It is now definitely settled that Victory Mills Ltd. is to be a wholly-owned subsidiary of Canadian Breweries Ltd. with E.P. Taylor, Brewers' chairman of the board, as president of the new company."

The new company's vegetable oil processing plant, now being constructed on Toronto's waterfront, will cost $2,000,000. "Production is expected to begin in November [1944] and should be in full swing by the spring of 1945. Soybeans will be the major raw material used, but Mr. Taylor says that with a few minor adjustments the plant can readily be operated on any of numerous other vegetable oil-bearing materials, including flaxseed, sunflower, rapeseed, peanuts, copra, etc.

"Mr. Taylor gives a lot of credit to the Toronto industrial commission and its general manager, T. Bartley, for its marshalling of factual material showing that Toronto, in competition with other centres, was the best place for Victory Mills and that the 5½ acre site in the Toronto harbor area at the foot of Parliament St. was a most suitable location for its needs."

Note: This is the earliest document seen (Jan. 2010) that mentions Victory Mills Ltd., later renamed Victory Soya Mills.

548. Doig, James L. 1943. White bread: The big market for soy. *Soybean Digest.* Nov. p. 5.
• ***Summary:*** "As the manufacture of soy flour gradually became a highly specialized process, and efficient grading of the beans made it possible to use only the highest grade in the manufacture of food products, the quality of soy flours reached a high standard of excellence, and the public became conscious of its amazing food value it was inevitable that soy flours would soon become a standard ingredient in bakery products."

"As a matter of fact, we had one plant in the Maritimes where they ran a special soy loaf, containing roughly 20 percent of soy flour, which proved a good selling item... The advertising campaign on this loaf very cleverly emphasized the high protein content of the loaf, and how it was obtained by the introduction of large percentages of 51 percent protein soy flour, which inversely lowered the starch content and increased the digestibility of the loaf, and asked the customers to ask their local doctors' opinion. Most of the doctors and nutritionists in the territory readily endorsed the claims."

Yet when we consider that these special breads rarely constitute more than 3% of the total output of a bakery, it "seems logical to us that a better idea was to introduce small percentages of soy into all bread with a view of raising the protein contents to higher maximums than ever before. We decided, therefore, to concentrate on 1-3% in white breads and 3-5% in dark breads, giving a protein increase of from 20 to 35%... As proof that this decision was sound, our output of soy flour has increased some 600 percent in the last five years." Address: Floya Milling Co., Montreal, QUE, Canada.

549. *Toronto Daily Star (Canada).*1943. $320,000 plant is planned for processing soya beans. Dec. 20. p. 9.
• ***Summary:*** "A constructional program calling for the immediate expenditure of $320,000, for buildings, is proposed by Victory Mills Ltd., of which E.P. Taylor is president. These buildings are to be erected on the southeast corner of Parliament and Fleet Sts. [Streets] and include a mill house, processing house, boiler rooms and other accommodation in connection with the processing of soya beans."

Note: This plant started using screw presses, but soon added a solvent extraction plant.

550. Canadian Pacific Railway Co., Dep. of Colonization and Development 1943. Oil-bearing seed crops. *Agricultural and Industrial Progress in Canada.* 25(12):183. Dec.
• ***Summary:*** "A preliminary estimate of the production of oil-bearing seed crops in Canada for the current year gives flaxseed at 17,689,000 bushels, soybean 909,750 bushels, sunflower seed 18,600,000 pounds and rape seed 3,423,000 pounds.

"Commercial production of Argentine rape seed in Canada this year was a new venture. Seed was distributed in five provinces, chiefly in Manitoba and Saskatchewan, and a crop of 3,423,400 pounds from 4,051 acres is estimated. Yields per acre were very high in Manitoba."

"Soybean production is not new in Canada, but heavy expansion in acreage was sought in 1943. Weather conditions interfered with planting operations, especially in Ontario where the bulk of the crop is produced, and while some increase in the seeded area took place the plantings fell far short of the objective of 90,000 acres. The preliminary estimate of the total production is placed at 909,750 bushels from 50,400 acres distributed by provinces as follows: Ontario, 874,200 pounds from 47,000 acres, average yield 18.6 pounds per acre; Manitoba, 22,500 pounds from 2,500 acres, average yield 9 pounds per acre; British Columbia 13,050 pounds from 900 acres, average yield 14.5 pounds per acre. This gave an average yield for the three provinces of 18.1 pounds per acre."

551. The international who's who. 1943. London: Europa Publications Ltd. See p. 840. 26 x 20 cm. *
• ***Summary:*** An annual periodical. On page 840 this biography states: "Taylor, Edward Plunket. B.Sc.; Canadian

industrialist;" Born 1901; Educated Ashbury College, Ottawa Collegiate Institute, and McGill Univ., Montreal, Canada.

"Joined McLeod, Young, Weir and Co. Ltd. 1923. Director 1929. Resigned 1930. Director Brading Breweries 1923. President Canadian Breweries, Ltd., Orange Crush, Ltd., Honey Dew, Ltd... Sunsoy Products Ltd."

552. *Toronto Daily Star (Canada).*1944. Cash grain. Jan. 24. p. 12.
• ***Summary:*** The section titled "Vegetable oils–L.C.L." includes these two listings: Soya bean, crude–15 nom.

" Soya bean, ref. deod. [refined, deodorised]–17 18 nom.

Note: This is the earliest document seen in the *Toronto Star* (Dec. 2009) that mentions soya bean oil, or that mentions it as a commodity with a price. Address: Toronto.

553. Canadian Pacific Railway Co., Dep. of Colonization and Development 1944. Progress paragraphs: Toronto, Ontario. *Agricultural and Industrial Progress in Canada.* 26(1):13. Jan.
• ***Summary:*** "The first section of a $2,500,000 plant to extract and process soybeans, linseed and other vegetable oils will be completed in Toronto before July 1st, it is officially announced. The new plant is an enlargement of Sunsoy Products Limited, which firm will shortly change its name to conform with the wider production of the proposed new plant. Six buildings in all are to be constructed, the first as a storage plant for seed. By the end of the year the plant will likely be in full operation with provision to store sunflower, copra and rape seed, as well as soybeans and linseed and to produce vegetable oil from them."

554. Eaton (T.) Co., Limited. 1944. Order food Monday for delivery Tuesday (Ad). *Toronto Daily Star (Canada).* April 22. p. 30.
• ***Summary:*** Under "Fifth floor provisions": "... Soya Sauce, Chinese, 6-oz. jar–21¢." Address: College St., Toronto. Phone: TR. 3311.

555. Laucks, I.F. 1944. The story of soybean adhesives. *Soybean Digest.* April. p. 11.
• ***Summary:*** I.F. Laucks, a chemist operating a customs analytical laboratory, was asked by the newly established fir plywood industry of the Pacific Northwest to develop a plywood glue. Laucks worked for several years using soybean meal as the basis of his glue. For the first trial run, he persuaded one plywood factory to try one ton of the new glue. It was sufficiently good that this factory changed over their entire operation to soybean glue.

"When a number of running boards began coming apart all over the country, a committee was appointed by the plywood industry to arrange competitive tests to determine the best glue for the industry to use. The result was that soybean glue showed up considerably better than any of the rest, especially in its water resistance.

"This was the turning point in the history of soybean glue. By the latter part of 1927, about one year from the date of the competition, every plant on the Pacific coast was using soybean glue."

Photos show I.F. Laucks (the man), the I.F. Laucks Soybean Plant at Portsmouth, Virginia, and a vat where soybean glue is mixed. The company has plants in the USA, Sweden, Vancouver (BC, Canada), and Australia. Address: I.F. Laucks, Inc., Seattle, Washington.

556. *Soybean Digest.*1944. American Soybean Association will hold its silver jubilee at Urbana, Illinois, September 12-13, 1944. May. p. 11.
• ***Summary:*** A large table lists the ASA's annual meetings and officers, 1920-1944 inclusive. 1st annual meeting. Sept. 1, 1920, Camden, Indiana. President: Taylor Fouts, Camden, Indiana. Secretary: W.A. Ostrander, Lafayette, Indiana. 2nd. Sept. 1, 1921, Urbana & Tolono, Illinois. President: W.E. Riegel, Tolono, Illinois. Secretary: W.A. Ostrander. 3rd. Sept. 1, 1922, Columbia, Missouri. President: C.E. Carter, Columbia, Missouri. Secretary: W.A. Ostrander. 4th. Sept. 11, 1923, Madison, Wisconsin. President: G.M. Briggs, Madison, Wisconsin. Secretary: W.A. Ostrander. 5th. Aug. 29-30, 1924, Ames, Iowa. President: W.J. Morse, Washington, D.C. Secretary: C.L. Meharry, Attica, Indiana.

6th annual meeting. Sept. 1-3, 1925, Washington, DC. President: W.J. Morse. Secretary: C.L. Meharry. 7th. Aug. 10-12, 1925, Stoneville, Clarksdale, and Greenville, Mississippi. President: W.E. Ayres, Stoneville, Mississippi. Secretary: C.L. Meharry. 8th. Aug. 9-11, 1927, Belhaven, Washington, and Elizabeth City, North Carolina. President: F.P. Latham, Belhaven, North Carolina. Secretary: W.E. Ayres. 9th. Aug. 15-17, 1928, Camden and Lafayette, Indiana. President: Taylor Fouts. Secretary: W.E. Ayres. 10th. Aug. 22-24, 1929, Guelph, Ontario, Canada. President: G.I. Christie, Guelph, Canada. Secretary: J.B. Edmondson.

11th annual meeting. Sept. 10-12, 1930. Urbana, Illinois. President: W.L. Burlison, Urbana, Illinois. Secretary: J.B. Edmondson. 12th. Aug. 17-18, 1931, Columbia, Missouri. President: W.C. Etheridge, Columbia, Missouri. Secretary: W.L. Burlison. 13th. Sept. 2-3, 1932, Washington D.C. President: W.J. Morse. Secretary: J.B. Park. 14th. Aug. 3-5, 1933, Baton Rouge and Houma, Louisiana. President: John Gray, Baton Rouge, Louisiana. Secretary: W.E. Ayres. 15th. Aug. 22-24, 1934, Little Rock and Stuttgart and Marianna, Arkansas [Jacob Hartz of Stuttgart spoke]. President: C.K. McClelland, Fayetteville, Arkansas. Secretary: P.A. Webber.

16th annual meeting. Aug. 22-24, 1935, Evansville and Lafayette, Indiana. President: K.E. Beeson, Lafayette,

Indiana. Secretary: P.A. Webber. 17th. Sept. 14-16, 1936, Ames and Cedar Rapids and Hudson, Iowa. President: E.C. Dyas, Ames, Iowa. Secretary: K.E. Beeson. 18th. Sept. 14-16, 1937, Urbana, Illinois. President: J.C. Hackleman, Urbana, Illinois. Secretary: K.E. Beeson. 19th. Sept. 12-14, 1938, Columbus and Wooster, Ohio. President: J.B. Park, Columbus, Ohio. Secretary: K.E. Beeson. 20th. Sept. 11-12, 1939, Madison, Wisconsin. President: G.G. McIlroy, Irwin, Ohio. Secretary: J.B. Edmondson.

21st annual meeting. Aug. 18-20, 1940, Dearborn, Michigan [Hosted by Henry Ford]. President: G.G. McIlroy. Secretary: J.B. Edmondson. 22nd. Sept. 12-13, 1941, Ames and Des Moines, Iowa. President: G.G. McIlroy. Secretary: J.B. Edmondson. 23rd. Sept. 15-17, 1942, Lafayette, Indiana. President: D.G. Wing, Mechanicsburg, Ohio. Secretary: G.M. Strayer. 24th. Sept. 5-7, 1943, Cedar Rapids, Iowa. President: D.G. Wing. Secretary: G.M. Strayer. 25th. Sept. 12-13, 1944, Urbana, Illinois. President: J.E. Johnson, Champaign, Illinois. Secretary: G.M. Strayer.

557. *Soybean Digest.*1944. Canadian supply [of soybeans] is lower. May. p. 17.
• ***Summary:*** "Of the 55,400 acres planted in 1943, about 47,000 [84.8%] were in Ontario"–according to the Dominion bureau of statistics. "A recent survey of that Province indicates that only 68 percent of the planted area was harvested and that approximately 35 percent of the beans will be fed to livestock."

"In order to keep domestic crushers operating, it has been necessary to import small quantities of soybeans from the United States. This is probably one of the reasons for increasing the 1944 goal from 55,100 to 90,000 acres. A price of $1.96 per bushel for No. 1 soybeans, basis Toronto, was established as a floor level for the 1942 and 1943 crops. This price nets the grower about $1.86 at the shipping point.

"Canada has produced soybeans for several years, but it is only since the war began that acreage has expanded sufficiently to make possible a commercial crop of importance. The area has been centered chiefly in southern Ontario, although experimental growing has taken place also in Manitoba and parts of British Columbia."

A table gives Canadian soybean acreage, production, and yield from 1936 to 1943. One bushel weighs 60 pounds.

1936–Acreage: 11,217. Production: 247,984. Yield: 22 bu/acre.

1937–Acreage: 8,602. Production: 159,244. Yield: 18 bu/acre.

1938–Acreage: 9,250. Production: 203,500. Yield: 22 bu/acre.

1939–Acreage: 9,786. Production: 215,292. Yield: 22 bu/acre.

1940–Acreage: 10,600. Production: 233,200. Yield: 22 bu/acre.

1941–Acreage: 10,900. Production: 216,900. Yield: 20 bu/acre.

1942–Acreage: 44,000. Production: 925,000. Yield: 21 bu/acre.

1943–Acreage: 50,400. Production: 907,250. Yield: 13 bu/acre.

Note: This is one of the few documents seen that gives statistics on soybean production in Canada before 1943.

558. *Soybean Digest.*1944. Ontario varieties. May. p. 16.
• ***Summary:*** "In his annual report, P.M. Dewan, Ontario Minister of Agriculture, gives the bushels per acre yields of different varieties of [soy] beans at the Western Ontario Experiment Farm, in 1942, as follows:

"E.F.R., 49.27; Wisconsin Robust, 49.27; Michigan Robust, 48.41; Navy (Wigle), 48.41; Guelph Selected, 47.98; Ithaca Robust, 47.54; Michelite, 46.68, Blue Pod, 39.76; Burbank (Alberta), 38.90; Yellow Eye, 34.58; Red Kidney, 34.58; Pinto, 32.58; B.C. White, 31.98; B.C. Speckled, 26.80; Alberta Brown, 12.97.

"'E.F.R.,' Michelite and the different types of Robust beans gave the largest yields. Michelite was slightly down in the test this year but continues to give the highest average over a period of years."

559. Taylor, Demetria M. comp. 1944. The soy cook book. New York, NY: Greenberg. 215 p. Index. 21 cm. [2 ref]
• ***Summary:*** Emphasis on recipes using soy flour, sprouts, and whole dry soybeans. Contains one of the most complete early listings of commercial soyfoods products, with product name, and manufacturer name and address.

Contents: 1. Soy–The wonder bean. 2. Growing soybeans in Victory Gardens. 3. How to sprout soybeans. 4. How to cook soybeans: Green soybeans preservation, canning, dehydration, quick freezing, dried soybeans, soybean pulp or "mash" (cooked, crushed or finely chopped soybeans), soybean milk and soybean curd or "cheese," recipes for dried soybeans, recipes for canned soybeans, recipes for soybean pulp, roasted soybeans or soynuts (p. 45), soynut butter (p. 47), recipes for soybean milk and mash [okara]; "It makes a good base for macaroon-type cookies" (p. 50), recipes for soybean curd or "cheese" (tofu). 5. How to use soy flour. 6. Using soy grits and flakes. 7. Stretching meat with soybeans. 8. Using other soy products. List of [commercial] soybean products (p. 199-202). Key to recipe sources.

Chapter 2, "Growing soybeans in Victory Gardens," states (p. 4): "In general, all varieties may be classified under two main types: the field type and the edible or vegetable type. The latter type is the one which is of interest to the Victory Gardener, although a few field varieties, such as Illini or Manchu, are satisfactory for eating purposes." Varietal trials (p. 5-8) with four type-A vegetable varieties (suited for cooler, northern climates) show: In mountainous

Colorado, all four varieties matured seed at altitudes of 5,000 to 7,000 feet. In Idaho, all four varieties matured seed at altitudes of 1,700 to 3,745 feet. In Montana, Giant Green soybeans matured seed at altitudes of 3,000 to 4,900 feet. In Wyoming, Giant Green was the only variety to mature seed in Campbell county (4,600 feet) and in Park county (4,600 feet). But all four varieties matured seed in Johnson county at an altitude of 3,750 feet. Giant Green also did well in Utah and New Mexico at altitudes of 7,000 to 8,000 feet. In California, 11 counties reported success with vegetable-type soybeans. In Tucson, Arizona, 8 varieties were grown under irrigation at an altitude of 2,400 feet, all with satisfactory yields. Some varieties also did well in Canada. In St. George, Ontario, Giant Green, Bansei, Fuji, and Willomi all matured seed before killing frost. Bansei was the best producer. In Barrington Passage, Nova Scotia, Fuji was the only variety that produced pods before frost. At Bogot, Manitoba, only Giant Green matured seed before frost, but Fuji reached edible condition. At Swift Current, Saskatchewan, the season was evidently too cool for soybeans. Page 142 states: "Soy grits and soy flakes are made from soybeans in much the same way that soy flour is made. However, they contain almost no fat, and are ground more coarsely. Grits are like corn meal in texture, while flakes resemble rolled oats. Grits and flakes both contain less than 45 per cent protein."

Note 1. This is the earliest English-language document seen (April 1995) that uses the term "soynuts" to refer to soynuts. On pages 45-49 the book gives recipes for: Cream of soynut soup (using 1 cup Co-Op soynuts), Soynut rice loaf. Soynut honey buns. Soynut brownies. Soynut butter. Economical soynut brownies. Soybean brittle (using 1 cup chopped roasted soybeans).

Note 2. This is the earliest English-language document seen (Nov. 2009) that contains the term "soynut butter," used to refer to a product resembling peanut butter that is made from roasted soybeans. The recipe for "Soynut butter" (p. 47) states: "Grind 2½ cups of roasted Vee-Bee soybeans and mix with 2 tablespoons of salad oil. Use in place of butter or as a sandwich spread." On p. 197 is a recipe for Mull-Soy "ice cream."

560. *Gazette (The) (Montreal, Quebec, Canada).*1944. Victory Mills plant nearing production. Sept. 1. p. 22.
• ***Summary:*** Victory Mills Ltd., a subsidiary if Canadian Breweries Ltd., will soon begin production at its 5-acre site on the Toronto waterfront. according to announcement by E.P. Taylor, president of Victory Mills.

Mr. Taylor says that the new plant contains equipment not previously used in Canada for extracting the oil from soybeans.

Note: From this and other articles we can conclude that Victory Mills has not yet crushed any soybeans commercially.

561. Lehmann, E.W.; Bateman, H.W. 1944. Contributions of machinery and power to soybean production. *Soybean Digest.* Sept. p. 25-27.
• ***Summary:*** Tells the story of how the harvesting of soybeans using combines came to Illinois, starting in 1924. "A special soybean harvester of the beater type, was developed in Virginia and was used to some extent in other southern states. Such a harvester was secured by the Department of Agricultural Engineering in 1923 for test purposes in Illinois. This beater machine was not successful for harvesting due to the high losses. Other harvesting machines tested before the combine came on the scene were: the self-rake reaper and thresher; the mower, rake and thresher; and the binder and thresher. Tests on these various methods indicated the average losses approximated 30 percent, with individual losses as high as 45 percent."

"In 1923 a conference was arranged with representatives of three of the large manufacturing companies, and they were requested to loan a combine to the University for testing its possibilities for harvesting soybeans. The idea of using a combine, then available in large sizes in the West, on the smaller farms east of the Mississippi River where grain had always been shocked and later threshed was considered by them as a 'wild-eyed dream,' and their decision was unfavorable.

"Through the interest of C.A. Dennison [sic, Denison], branch manager of the Massey-Harris Co., of St. Louis [Missouri], a machine from Canada was secured which was sold in 1924 to Garwood Bros. of Stonington, Illinois. According to the best information we have, this was the first combine that was ever used any place for harvesting soybeans. In 1925 Mr. Denison sold 11 additional combines in Illinois. In June of that year, at the request of Mr. Denison, I surveyed the possibilities of using combines in Mississippi and he sold several machines in that state that year. By 1926 other manufacturers of combines had recognized their error and realized that the combine apparently was the solution to the soybean harvesting problem. A total of 52 machines of various makes were sold in Illinois during 1926, making a total of 64 machines available.

"Most of the early combines were purchased for harvesting soybeans, although many other crops were successfully harvested with these machines. The soybean acreage made up 53 percent of the 11,105 acres of all crops harvested by 52 of the 64 machines being used in Illinois in 1926. The average losses incurred in harvesting with the combine were less than one-third the amount lost with the other methods, which proved the combine to be the machine for harvesting soybeans. However, it is evident that since the cutter bar loss is still fairly high, a great need exists for the development of a variety of soybeans which produces

all the pods higher up on the stalk and which will not shatter and lodge as badly as do existing varieties.

"The higher quality, in addition to lower losses, of beans harvested with the combine was also most convincing as to the value of the combine in harvesting soybeans. During 1925 and again in 1926, when the soybean harvesting seasons were exceptionally wet, tests indicated the higher quality of combined beans since they were not only of lower moisture content but also the germination of the combined beans was much higher than of those harvested by other methods. A difference of 10.1 percent moisture content was found in beans harvested the same day in adjacent fields, one lot with the combine and the other with a threshing machine. The beans threshed from the shock had 24.6 percent moisture content while those harvested with the combine contained a moisture content of only 14.5 percent. It is easy to understand that standing beans dry much more rapidly following a wet period than shocked beans. Consequently many of the shocked soybeans were of a poor quality when threshed."

"Before the combine was used to harvest soybeans, approximately 50 percent of the relatively small acreage of beans produced was grown for hay. To a large extent, those farmers who grew beans for grain expected to sell them for seed. Following the advent of the combine as a means of harvesting beans for grain, the acreage of soybeans has increased very rapidly.

"There have been changes in the combine design, but in principal it is essentially the same as the combine which was introduced from the west 20 years ago. Three types of combines were used in 1926: the motor-mounted type which was drawn by a tractor, the power take off type, and a combine mounted on a tractor and driven from the belt pulley. The latter was one of the first models of the self-propelled types which has been developed to a more successful machine and put on the market in limited numbers by a few companies this season.

"The first small combines, that is the 5- and 6-foot cut, came into the picture in 1935, and the 3½- and 4-foot machines were available in 1939. These small combines were of the power take off type and were designed so that they could be operated successfully with the tractors available on most farms. Since the investment required for these small machines was low, farmers with small acreages of beans were justified in purchasing them."

"In recent years further contribution in labor reduction has been made through the improved design of the 8- and 9-foot machines so they may be operated successfully by one man. The self-propelled machine, which is now receiving considerable attention, has the distinct advantages of saving labor, making it easy to open a field, and saving more grain in opening a field. Its inherent high cost seems to make it justified where large acreages can be harvested on a farm or through custom harvesting."

A small portrait photo shows E.W. Lehmann. Address: 1. Head, Dep. of Agricultural Engineering, Univ. of Illinois [Urbana, Illinois]; 2. Associate in Agricultural Engneering.

562. Ostrander, W.A. 1944. It's fun to remember [the birth of the American Soybean Assoc.]. *Soybean Digest.* Sept. p. 16-17.

• ***Summary:*** One of the best early histories of the A.S.A. It all began on the Fouts Bros. farms near Camden, Indiana. The author, now a farm manager, was formerly a member of the Purdue University faculty. He was one of the founding spirits of ASA and served as its secretary for the first four years. "The American Soybean Association grew out of the soybean campaign that was started in 1920 in Indiana because we needed a larger acreage of legumes in the cornbelt rotation. Clover was failing us possibly because of soil acidity, its biennial growth, or things we didn't know anything about. Soybeans looked like an answer."

"It was in the fall of 1920 that we in Indiana decided to have a sort of statewide get-together to see where we stood on the soybean situation, appraise what we had, and outline where we were going. We had had county soybean field meetings over the entire state and it seemed right that we hold a big get-together to finish it up. As we worked out the plan for this meeting it occurred to us that a good neighbor policy would be to invite the growers and experiment station men from our surrounding states to join us. Start it off with a bang. So out of that which started to be a state meeting was a Cornbelt meeting and out of it the American Soybean Association. All this on the Fouts Bros. farms near Camden, Indiana. Our idea was to take the soybeans to the farmer and the farmer to the fields of soybeans in his country. Conversion on the ground.

"The response to this meeting was away above what A.L. Hodgson, County Agricultural Agent of Carroll County, and I had any reason to expect. Illinois, Ohio, Michigan, Wisconsin, and Kentucky sent growers, county agents and men from the experiment stations. Over a thousand came. We fed them well. The start was made.

"All speeches were limited to three minutes; it shut off some of the long-winded folks but it gave all a chance.

"G.I. Christie reported for Indiana. He said we had 200,000 acres and thought he had the record stopped and I guess it was for the day. No one dared to go higher, but this year it is just 10 times that amount, 2 million acres. In those days we counted every acre that had a bean on it, in the corn, for hay and for seed.

"W.L. Burlison of Illinois said there were 25,000 acres in his state and more in sight. He was right. Last year they had 4 million acres.

"George Briggs was modest in reporting 4,000 acres for Wisconsin and he still is modest for they had 115,000 acres there last year.

"Wallace Hanger of Ohio surmised that Ohio had 15,000 acres and there the acreage is now 1,500,000.

"Iowa reported 50,000 acres and now has 2,200,000 acres and still going strong.

C.R. McGee [Megee] of Michigan said they were just getting going with 5,000 acres but they now have 150,000 acres."

"After visiting the soybean fields on the three Fouts Bros. farms, eating soybeans and talking our heads off and making many new friends, it was decided to hold a winter meeting at the time of the International Hay & Grain Show at Chicago, to keep the iron hot and to carry on. The first meeting was held on the bridge connecting the two exhibit rooms as we were not considered important or big enough to rate a room. Each year our numbers grew until we had to have the largest room they had. At these winter meetings we hashed over the latest soybean findings, worked on standards for the grading of the crop, talked over certification rules and always as a final job selected the state in which was to be held the summer meeting. Each year it was to be a different state.

"Our first big problems were better varieties, methods or harvesting, and the utilization of the crop.

"Just by a lucky break we brought the Manchu down from Michigan and this was our first unintentional success, a bean that was a 'natural' for the Cornbelt at that time. It did well most anywhere for hay or grain and did not shatter as did those we had. We were growing largely the old so-called Hollybrook (the Association changed its name to the Midwest) and the Ito San was our early variety. Our big headache was the harvesting of the crop... A combine seemed to be the answer.

"Then came the utilization of the crop. Up to 1920 we had been using all soybeans produced in the Cornbelt for seed, for hay, hogging off and seed again. It was not a grain crop yet. We went to the oil extraction companies and they said sure we will put in additional machinery to take care of them as soon as you have the quantity to make it worth while. Back to the farmers we went but they came right back and said sure we will put in more acreage and glad to as soon as we are certain we can get rid of the crop at a fair price. So–there we were. It is too long a tale to tell all that came and went until the oil plant at Chicago Heights was taking all beans offered. It was the old hydraulic system and it worked fairly well. The late Russel East and I got the corn starch plant at Edinboro, Indiana, to try some beans through their Anderson Expellers. It worked. It wasn't long then before Bloomington, Monticello, and Taylorville, Illinois, had plants and that chapter was ended.

"It had not been hard to sell the idea to our farmers that they were wise to grow their own protein feed. That was a natural. When we fed the soybeans alone as a supplement the oil in the beans gave us soft pork and that was a black eye for a few years but now that, too, has been eliminated.

"Where we fell down the worst, as I see it now, was that we did not stress the human food side stronger. We talked about it enough but got nowhere. The principal reason, I believe, was in our shortsightedness in not dropping the word 'bean' and just using the word 'soy.' Let's give away half of the name after we work on the grain and open up the road to unlimited food uses of this best of all protein grains raised on our farms.

"Many still with us: One of the fine things as we look back over the past 25 years is that so many of the boys that were with us at that first meeting are still going strong for soys. I don't believe the old mainspring, W.J. Morse of the U.S. Department of Agriculture, has missed a single meeting, at least not of his own volition. Probably the ones we miss most are the two Fouts Bros., Noah and Finis, Charles Meharry and Dean J.H. Skinner. They were always on hand. You can not meet Burlison, Hackleman or Bill Riegel of Illinois without talking soybeans. George Briggs of Wisconsin is still his old soybean story self.

"Helms of Missouri, McGee [Megee] of Michigan, and Hanger of Ohio still talk of that first meeting under the trees on the Fouts farm. Hughes of Iowa is as strong as ever for the beans and Christie, while he has been gone to Canada, this some time, can still tell a tall soybean story. Our own A.T. Wiancko here in Indiana, who guided us so well from behind the scenes, is still the active pusher for soys that he always was.

"We have been making soybean history in the Association for the past 25 years. If we can go on as much farther in the next 25 years–soybean history will have been made."

Photos show: (1) "The birthplace of the A.S.A." The three Fouts brothers, Taylor, Finis, and Noah (from left to right, each wearing a hat, coat, and tie) standing in front of a barn on which is written "Soyland–Taylor Fouts," at the first meeting of the ASA, September 1920. (2) "1,000 at first meeting." The top half of this photo shows hundreds of attendees seated on the grass under trees in the yard at Soyland listening to a speech. "Attendance was far beyond that expected, with representatives from many states." The bottom half shows 25-30 mean and women standing in a soybean field at Soyland. Address: Lafayette, Indiana.

563. Simpson, Jean I. 1944. Some problems in using soybeans as food. *Soybean Digest.* Sept. p. 43-44.
• ***Summary:*** "Soy foods, well chosen and properly prepared, are exceedingly attractive but their wide acceptance depends on proper precessing, standardization and appealing to people's tastes. Dr. Simpson has been a member of the Department of Home Economics staff of the University of Illinois since 1941, when she left a teaching position at the University of Toronto" [Ontario, Canada].

Many Americans have a prejudice against soybeans for table use. This as arisen because, until recently, soybeans

have been recommended chiefly for low-cost diets. This association has "created an impression that although they are nourishing, they are not very palatable."

Three types of soy flour are generally available: the minimum-fat or no-fat with less than 1% fat, the low fat flour with about 5-8% fat, and the high-fat or full-fat soy flour with 18-24% fat. These flours work well at home for baking quick-breads and cookies, or in smaller proportions, for yeast breads and shortened cakes.

The section titled "Vegetable soybeans" explains the difference between this type and "field types of soybeans." "Throughout Illinois and in all probability throughout other states, many families are growing vegetable soybeans in their Victory Gardens and are well pleased with the results of their efforts." "Considerable interest has been aroused recently in the use of vegetable soybeans at the green or immature stage. The season during which fresh green soybeans is available is rather limited, and hence arises the problem of finding suitable methods of preserving them..." Freezing works best. Soy sprouts are a good source of vitamin C. A portrait photo shows Jean Simpson. Address: Dep. of Home Economics, Univ. of Illinois.

564. *Soybean Digest.*1944. Pioneers recognized: Fouts, Ostrander, Meharry, Hurrelbrink, Burlison, Morse, Christie, Wilkins. Sept. p. 19.

• ***Summary:*** "Some pioneers whose work contributed materially to the rise of the soybean in America were given recognition on behalf of the Association by J.C. Hackleman, University of Illinois extension agronomist, at the Tuesday evening meeting of the Silver Jubilee. They included:"

Taylor Fouts, W.A. Ostrander, Chas. Meharry, Frank Hurrelbrink, Dr. W.L. Burlison, W.J. Morse, G.I. Christie, and F.S. Wilkins.

Taylor Fouts (Camden, Indiana) was the first president of the American Soybean Association. He was one of the most enthusiastic soybean producers and a farmer with vision.

W.A. Ostrander (Lafayette, Indiana) was the first secretary of the American Soybean Association. "Then the extension agronomist at Purdue University, he worked very closely with Fouts in preparing the first meeting [in Sept. 1920 at the Fouts farm, Soyland, in Indiana].

"The late Chas. L. Meharry (Tolono, Illinois), truly one of the pioneers of both Indiana and Illinois. He grew soybeans as early as 1908, and when he announced his intention of growing 19 acres in 1909, his farm manager, C.H. Oathout, asked, 'What in the world are you going to do with that many acres of soybeans?' Mr. Meharry helped pioneer the combine for harvesting soybeans. He assisted with the work of the Association for years, acting as secretary and as a member of the board of directors. He was largely responsible for the design of the Association emblem."

Frank Hurrelbrink, a farmer from Taylorville, Illinois, "began growing soybeans in 1904 and has grown them ever since. Obtaining seed from the University of Illinois, he set out to develop his own variety, seeking a bean that would stand well, resist shattering and could be left in the corn field until the livestock could harvest the seed from the standing plants. This he did. The Hurrelbrink soybean is still grown and in demand.

"Dr. W.L. Burlison, chief of the Agronomy Department of the University of Illinois, unable to attend the Jubilee because of illness although the program was largely of his planning. He has been actively interested in the crop since his association with the department. He led a coordinated study at Illinois is search of commercial outlets for soy products and had influence in obtaining a special federal laboratory for the study of the commercial uses of soybeans.

"W.J. Morse, U.S.D.A. Bureau of Plant Industry agronomist, dean of all soybean enthusiasts. The regional laboratories are in no small part the result of his unceasing efforts."

G.I. Christie of Guelph, Canada, a former Purdue University agronomist, was president of the American Soybean Association in 1929. Now president of the Ontario Agricultural College, he was formerly director of the Indiana Experiment Station and a booster for soybeans.

The late F.S. Wilkins of Ames, Iowa, was leader of the soybean project at Iowa State College until his death in 1936. He picked the Mukden soybean variety, the most widely grown of Iowa's varieties, from the thousands of selections under his supervision. "A most enthusiastic scientist."

Photos show: (1) A.E. Burwash (Champaign, Illinois), W.E. Riegel and J.T. Smith (Tolono, Illinois), and W.J. Morse (USDA). (2) Chas. Meharry (Tolono, Illinois).

Note: This is one of two articles published in 1944 which appear to be the forerunners of the concept of "honorary life members" in the American Soybean Association.–which began in Sept. 1946.

565. *Soybean Digest.*1944. First soybean combining. Sept. p. 26.

• ***Summary:*** "By the fall of 1923 the four Garwood brothers, Frank, Harry, Herman and William, who were extensive soybean producers at Stonington, Illinois, had decided that they must find a new method of harvesting if they were to continue to expand acreage. It was their belief that it should be possible to adapt the combine as used in the western wheat fields to soybeans.

"Several harvester companies were contacted and the Massey-Harris Company agreed to make the trial which was held October 22, 1924.

"Twenty-seven and 65-acre fields of AK soybeans were harvested with a 12-foot combine. The late A.E. Buchanan, Massey-Harris engineer of Toronto, followed the machine

making necessary adjustments. People from all over Illinois, including farm paper and farm machinery representatives, attended.

"The trial was successful and those who came to scoff went home convinced. Several harvester companies came out with combines the following year.

"The above photo of the first combine in operation on the Garwood farm is from *Prairie Farmer,* which sent a representative to cover the event."

A large, grainy photo (2½ by 4½ inches) shows a man standing atop an early combine.

566. *Soybean Digest.*1944. Grits and flakes from the industry: Victory Mills Ltd.,... Oct. p. 16.
• ***Summary:*** "... a subsidiary of Canadian Breweries, Ltd., of Toronto, Ontario, has built at the behest of the Dominion government a 2 million dollar processing plant with an annual capacity of 3 million bushels on the waterfront at Toronto. The undertaking is primarily to relieve Canada's acute vegetable oil and protein feeds shortage. Soybeans and other oilbearing seeds as well as brewers' grains will be processed. Both the expeller and solvent processes will be used."

567. *Toronto Daily Star (Canada).*1944. Market sidelights: Victory Mills Ltd. Nov. 20. p. 10.
• ***Summary:*** "First unit of the new $2,000,000 soybean and vegetable oil seed processing plant of Victory Mills, Ltd., wholly-owned subsidiary of Canadian Breweries Ltd., on the waterfront in Toronto, is now in operation. Three of the five mechanical screw presses are already operating.

"The second unit, which extracts the oil and meal by a solvent process, is now being erected and will be in production before next summer."

568. **Product Name:** Soybean Oil, and "V" Soybean Oil Meal (Renamed Veeline Soybean Oil Meal in 1949).
**Manufacturer's Name:** Victory Mills Ltd. (Subsidiary of Canadian Breweries Ltd.). Renamed Victory Soya Mills in 1955.
**Manufacturer's Address:** 285 Fleet St. East, Toronto, ONT, Canada.
**Date of Introduction:** 1944. November.
**Ingredients:** Soybeans.
**New Product–Documentation:** *Toronto Daily Star* (Canada). 1944. "Market sidelights: Victory Mills Ltd." Nov. 20. p. 10. "First unit of the new $2,000,000 soybean and vegetable oil seed processing plant of Victory Mills, Ltd., wholly-owned subsidiary of Canadian Breweries Ltd., on the waterfront in Toronto, is now in operation. Three of the five mechanical screw presses are already operating."

*Soybean Digest.* 1945. June. p. 9. "Canada climbs aboard soybean bandwagon with Victory Mills Ltd." "Victory Mills Ltd. was recently constructed on 5½ acres of vacant land on Toronto's busy waterfront. The continuous solvent extraction plant is now actively crushing soybeans..."

Soybean Blue Book. 1947. p. 64. "Processors of soybeans in Canada. Toronto–Victory Mills Ltd. 285 Fleet St. East, Toronto. Subsidiary: Canadian Breweries Ltd." 5 expellers, capacity 120 tons. Naptha [Naphtha] solvent, capacity 110 tons. Storage capacity: 1,150,000 bushels. President: H.D. Edgly. Vice President: C.L. Rogers. Head soybean buyer and director of agricultural research, D. Charles W. Cook. Plant superintendent: E.H. Gautkey. Meal sales manager: J.C. Henderson. "V" soybean oil meal. Also makes high and low fat soy flour.

Soybean Blue Book. 1948. p. 74. The company also makes Indosoy industrial soy flour, and Soywhite fat free soy flour.

Soybean Blue Book. 1949. p. 90. The company's soybean oil meal is now named Veeline." On page 82 is a half-page ad titled "Victory Mills Limited." An excellent illustration shows the entire facility. "Head office and plant: 285 Fleet St. East, Toronto. Montreal office: 816 Royal Bank Bldg, Montreal." Across bottom of ad: "Vegetable oils, oilmeals, soybean flours, malt sprouts, brewer's-malt, dried yeast, dried grains."

Soybean Blue Book. 1955. p. 97. The company is now named Victory Soya Mills, Ltd. Same address. "Affiliate of Procter & Gamble Co., Cincinnati, Ohio. Phone: Empire 2 8771.

Soybean Blue Book. 1960. p. 74. The company is now located at 333 Lake Shore Blvd. East, Toronto 2, Ontario. Phone: Empire 3-8771.

Soybean Blue Book. 1968. p. 96.

Soybean Digest Blue Book. 1978. June. p. 118. Address: 333 Lake Shore Blvd. E., Toronto M5A 1C2, Ontario, Canada.

569. *Chatham Daily News (Ontario, Canada).*1944. Kent county leads province in soybean production: Value of 10 field crops at over 6½ million. Dec. 18. p. 1.
• ***Summary:*** "Soybean production in Kent County for the past year was higher than that of any other county in Ontario, statistics released this morning by the Ontario Department of Agriculture reveal. Kent has led all of Ontario in the production of soybeans for the past three years."

"Kent's soybean output totalled 284,007 bushels which is over 200,000 bushels more than was produced in any other county. Essex was second in output with 81,720 bushels." The soybean Kent County soybean crop was worth $582,214.

570. Capital: New Canadian domestic soybean variety. 1944. Seed color: Yellow (straw), hilum pale.

• ***Summary:*** Sources: Dimmock, F. 1945. "Soybean growing in Canada." *Soybean Digest.* June. p. 8-9. "More recently new varieties made available through breeding work in the Dominion are Pagoda, Goldsoy, Kabott, Capital and Harmann."

Dimmock, F. 1948. "Soybean breeding at Ottawa." *Soybean Digest.* March. p. 18.

"More recently a new variety, Capital, has been added to the group. Capital originated from a cross between strain 171 x A.K. (Harrow) made in 1935. Strain 171 was a selection obtained from a mixed lot of seed received by the Division of Forage Plants, Ottawa, in 1931 from J.L. North, Royal Botanic Garden, London, England and was collected in the vicinity of Sochentze, east of Harbin, Manchuria."

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 2. "Capital–Central Experiment Farm (Canada)."

Dimmock, F. 1948. "Soybeans." *Canada. Department of Agriculture, Farmers' Bulletin* No. 149. p. 1-19. June. Also called Canada. Dept. of Agriculture, Publication No. 807 (Actually 808). A map (p. 13) shows that Ontario is divided into 5 climatic zones for soybeans, with each zone having earlier and later areas. The varieties best suited for each zone and area are given. Capital is best suited for zones 3 and 4.

USDA Production and Marketing Administration [Grain Branch]. 1948. "Soybean varieties: Descriptions, synonyms and names of obsolete or old and seldom grown varieties." Washington, DC. 25 p. Aug. See p. 3. "Capital–Selection from a cross between strain No. 171 and A.K. (Harrow) by the Central Experiment Farm, Ottawa, Canada. Maturity, very early; pubescence, gray; flowers, white; pods, two- to three-seeded; shattering, medium; seeds, straw yellow with pale hilum, about 3,800 to the pound; germ, yellow; oil, 19.7 percent; protein, 39.3 percent; iodine number, 137."

Weiss, M.G.; Stevenson, T.M. 1955. "Registration of soybean varieties, V." *Agronomy Journal* 47(11):541-43. Nov. See p. 542. Capital (Registration No. 16) "originated as an $F_8$ selection from the progenies of a cross between Strain 171 and AK (Harrow) in the soybean breeding program of Forage Crops Division, Central Experimental Farms, Ottawa, Ontario, Canada. Strain 171 is an early maturing selection from a mixed seed lot obtained in 1931 from J.L. North, Royal Botanic Gardens, London, England, the germ plasm of which had been collected in the vicinity of Sochentze, east of Harbin, Manchuria. AK (Harrow) is a selection made at the Dominion Experiment Station, Harrow, Ontario from the AK variety.

"Capital is a moderately tall variety with erect, determinate growth and numerous short side branches. It has purple flowers, tawny pubescence, brown pods at maturity, and predominantly 2 to 3 beans per pod. The beans are small, round in shape and have yellow cotyledons, and yellow seed coat color with a light brown hilum and a distinctly dark spot at the micropyle. Capital is classified as Group 0 maturity, ripening approximately 3 days earlier than the Ottawa strain of Mandarin when grown at Ottawa and approximately the same date at more southern locations. Its region of adaptation extends laterally through central Minnesota and Wisconsin, Northern Michigan, and southeastern Ontario.

"Capital has been tested since 1941 at Ottawa and since 1946 in the Group 0 Regional Tests in the North Central States."

"Capital was licensed as a new variety in Canada in 1944 and released for production the same year."

USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 6.

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 8-9. Capital is in the USDA Germplasm Collection. Maturity group: 0. Year named or released: 1944. Developer or sponsor: F. Dimmock, Dep. of Agriculture, Central Experimental Farm, Ottawa, Ontario, Canada. Literature: 13, 14. Source and other information: Selected from 'No. 171' (introduced in 1931 from Sochentze, east of Harbin, Heilongjiang, China, via the Royal Botanic Gardens, London, England) x 'A.K. (Harrow)'. Prior designation: None. Address: USA.

571. *Ontario Agricultural College and Experimental Farm (Guelph), Annual Report.*1944. Department of field husbandry. 69:57-59. For the year 1943. See p. 59.
• ***Summary:*** The section titled "Co-operative crop testing" (p. 59) begins: "Replicated tests with leading varieties of oats, barley, corn and soybeans are being conducted on farms in many parts of the Province to obtain reliable information regarding the best varieties for each district and soil type." In 1943 there were 16 tests with 9 varieties of soybeans. Address: Guelph, Ontario.

572. **Product Name:** Agé.
**Manufacturer's Name:** Slocan Soya Co.
**Manufacturer's Address:** Slocan, BC, Canada.
**Date of Introduction:** 1944?
**New Product–Documentation:** Note: Slocan is in the southeast part of British Columbia. Letter from Edward and Danette Westlind. 1989. Aug. 14. "My wife and I are purchasing a small tofu and agé business on September 1, 1989. Slocan Soya Co. was started during the second World War when there was a large population of Japanese Canadians interned in the Slocan Valley. For roughly 30

years, agé was the only product made by Slocan Soya. Twelve years ago Slocan Soya Co. was sold to a local Caucasian woman who started producing tofu to supplement her income. From the 1940s until now there has been very little in equipment upgrading and the business has been gradually declining due to lack of interest on the part of its owner. We are confidant that with new energy and enthusiasm on our part the business can be revived."

573. *Toronto Daily Star (Canada).*1945. D.J. Bunnell... Jan. 25. p. 14.
• ***Summary:*** "... who has just been appointed president and elected a Director of Victory Mills Limited... Mr. Bunnell was formerly Vice-President and Director of Central Soya Company, Inc., one of the three largest soybean processors in the United States."

A large portrait photo shows D.J. Bunnell.

574. Morse, W.J. 1945. Soybeans in the land of our enemies. *Soybean Digest.* Jan. p. 6-7.
• ***Summary:*** Text of a letter to the American Soybean Assoc., Guelph, Canada, written from Tokyo, Japan on 20 July 1929. This is the first ASA meeting Morse has missed. He and Dorsett, comprising the Oriental Agricultural Exploration Expedition, arrived in Japan on March 18 and set up headquarters in Tokyo. "It is amazing, the extent to which the soybean is used for food in Japan." For details, see Morse 1929 ("Letter from Dr. Morse"). Address: USDA Bureau of Plant Industry, Washington, DC.

575. *Toronto Daily Star (Canada).*1945. Ma's cooking was good. Daughter's is scientific. Feb. 14. p. 4.
• ***Summary:*** Miss Katharine Currie is a home economics teacher at Weston collegiate and vocational school. She is learning things about food her mother never learned.

"'A year ago girls of our class experimented with soy bean flour cakes, which they found had a high nutritional value, said Miss Currie."

576. **Product Name:** Nippy Nut Butter.
**Manufacturer's Name:** Kavanaugh Foods, Ltd.
**Manufacturer's Address:** Toronto, Ontario, Canada.
**Date of Introduction:** 1945. February.
**How Stored:** Shelf stable.
**New Product–Documentation:** *Soybean Digest.* 1945. Feb. p. 22. "'Nippy Nut Butter' is a bread spread recently introduced by Kavanaugh Foods, Ltd., Toronto. The product is made from debittered and deflavored soybeans, and is about the same consistency and color as peanut butter, though it has a flavor all its own. The product possesses high protein and mineral value. The company's covered wagon symbol is prominently displayed."

577. Nicholls, Lucius. 1945. Tropical nutrition and dietetics. 2nd ed. London: Baillière, Tindall and Cox. xii + 370 p. Feb. Illust. Index. 22 cm. [30+* ref]
• ***Summary:*** This 2nd edition, which contains more than twice as many pages as the 1st, is extremely clear and well written, especially for beginners. Both books were written when the knowledge of nutrition was undergoing rapid development. It contains new information on major vitamins (nicotinic acid, vitamin K), several minor vitamins, several minerals including "trace" elements, much recent knowledge on the constituents of foodstuffs, foodstuffs more or less peculiar to the warm climates, diets suitable for hospitals, prisons and other institutions and for labourers at large, public health activities related to nutrition, food poisoning, insect pests of grain foods. The great progress in parasitology and nutrition has led to the lowering of death rates, especially infantile mortality; this "is producing such an increase in the numbers of the populations of the tropics that one may wonder what will be the nature of the end of it, for an end there must be." There is "growing acceptance that all persons have a right to diets adequate for good growth and health, as in another sphere, it has long been accepted that all children have a right to primary education" (p. v-vi).

Fats and lipoids (p. 4-8): "The fats and lipoids may be defined as substances which are soluble in ether, chloroform or benzene, but insoluble in water, and can be used as food by living organisms." Edible oils include olive, coconut, and sesame (gingelly) oil. "The fats are compounds of glycerol, which is trihydric, and fatty acids, which are monobasic, hence on hydrolysis the fats split up into three molecules of fatty acids and one of glycerol." An example is given. The naturally occurring fats are made up of many triglycerides plus various acids. There are two categories of fatty acids: Saturated and unsaturated. In saturated fatty acids (which contain carbon, hydrogen, and oxygen), the number of hydrogen atoms is twice the number of carbon atoms. The names and formulas of 8 saturated fatty acids are given. In unsaturated fatty acids, the number of hydrogen atoms is less than double the number of carbon atoms. These include oleic acid, linoleic acid, linolenic acid (first found in linseed oil), and arachidonic acid. "The unsaturated fatty acids can take up iodine (or other halogen) by addition to form saturated compounds. The amount of iodine taken up by a fat is more or less characteristic of that fat, and is known as the *iodine number,* and this number roughly indicates the amount of unsaturated fatty acid in the composition of the fat. Table III (p. 6) gives the iodine numbers of 13 vegetable oils and 5 animal fats. The highest iodine numbers are found in linseed oil (175-205), soya bean oil (137-41), and maize [corn] oil (113-25). The lowest iodine numbers are found in coconut oil (9), butter (26-28), palm oil (20-56) Chinese "tallow" (30), margarine (50), shea butter (56), and lard (60-70).

"Soft fats or oils, which are rich in unsaturated fatty acids, can be hardened to a desired consistency by hydrogenation, by which they are saturated with hydrogen by the aid of a catalyst, such as powdered nickel. The process has been widely used for the production of *margarine* and lard substitutes from vegetable and whale oils." "Human needs for fat. Fats are deposited in the subcutaneous tissue as a protection against cola and injury, and in the abdomen as a padding and support for the viscera. Their light, compact and soluble nature enables the storage of them to take place without the addition of water, and this can occur with no other substance. The fats are composed of the same three elements as the carbohydrates, but they are superior to them as a supply of energy because they have less oxygen in proportion to the carbon and hydrogen, and hence on complete combustion produce more energy [more than twice as much per gram]. Any normal deposit of fat is a reserve store for the production of heat and work."

Lipoids fall into three groups: Sterols, phospholipides (incl. lecithin), and glycolipides.

Chapter 4, titled "Vitamins: History, animal experiments, etc.," contains an excellent history of the subject. "The history may be considered to have started with the slow realization that the disease scurvy was due to a dietary error." Doubtless in ancient times it had been common in besieged towns, but it was not mentioned in the literature until Europeans began to take long ocean voyages. In 1498 Vasco da Gama lost 100 of his 160 men to scurvy. In 1535 Jacques Cartier first used a fresh vegetable preparation (a decoction of spruce tree needles, on the recommendation of Red Indians in Newfoundland) to effectively treat scurvy. "Two names stand out in connection with the dietetic treatment of scurvy in the 18th century." An Austrian army doctor, Dr. J.G.G. Kramer, (Physician to the Imperial Armies of Hungary, 1720-1730) wrote at this time: "3 or 4 ounces of orange or lime juice will cure this dreadful disease without other help." In 1747 James Lind, a British naval surgeon, performed a famous experiment on 12 men who were severely ill with scurvy. He divided them into 6 groups and tried six therapeutic measures of which the only successful one was two oranges and a lemon daily. In 1757 his famous *Treatise on Scurvy* as published. In 1795 the British Admiralty finally adopted Lind's recommendation–after 100,000 lives had been lost to scurvy. Similar histories of beriberi and rickets are given.

There is a small section on "Roughage" (p. 162). In Chapter 11, "Analyses of foodstuffs," the information on the same 14 pulses, including Soya bean (p. 184), is slightly more detailed. Under nuts and seeds (p. 192-93) are: Coconut milk. Gingelly seeds. Mustard seeds, Brassica juncea. Rape seed, Brassica napus. See also: Adlay (Job's tears), Coix lachryma (p. 182, 214). A good section on "Pulses, dhals, and beans" (p. 215-17), includes the soya bean. "The beans and peas fall under the general term pulses. Split peas are called *dhals* in Southern India, and dried peas, especially the smaller kinds, are called *grams.*" "Unfortunately the pulses are not very digestible and do not find a prominent place in the diets of the well-to-do." The commonest of the dhals is the lentil, sometimes called *Massur dhal.* There are two methods of making dhal: dry and wet. The best dhals are prepared by the dry method. The dhals are more digestible than the grams. Beans are "pulses with seeds more or less kidney shaped... The dried beans are the least digestible of the pulses."

The section on "Nuts and oil seeds" (p. 227) has much about coconuts, coconut oil and coconut milk. The section on "Fluorosis" (p. 306-09) notes: "When the amount of fluorine in the water exceeds one part per million some degree of mottling of the teeth usually occurs among the children drinking it.

The section on "Saponins in foodstuffs" (p. 309-10) lists the many foodstuffs in which they are found, including the soya bean.

Lucius Nicholls was born in 1884. Address: M.D., B.C., B.A. (Cantab.), Colombo, Ceylon.

578. Milner, Max. 1945. The respiration and storage behavior of soybeans. PhD thesis, University of Minnesota. 70 p. March. In: Doctoral Dissertations Accepted by American Universities, 1945. Also published as Minnesota Agric. Exp. Station, Scientific Journal Series, no. 2247, 2249, 2274, 2304. See also Milner and Geddes 1945-1946 in Cereal Chemistry. [102 ref]
• ***Summary:*** Four parts discuss heating, interseed air movements, aeration, moisture content, mold growth. At the end of the thesis is a Vita (autobiographical sketch). Max Milner was born in Edmonton, Alberta, Canada on 24 Jan. 1914. Address: Univ. of Minnesota.

579. Olmsted, Fred L. 1945. Who's who and why [Herbert Marshall Taylor and Delsoy]. *Detroit News.* April 16. p. 4.
• ***Summary:*** Herbert Marshall Taylor is a native of Canada. When "hail, frost, and influenza" put an end to his farming in Alberta, he returned to Toronto, where he had received a university degree 6 years earlier. "He acquired American rights to a gadget which British housewives had bought in quantity to make cream from butter and milk through homogenization. He sold 30,000 in the United States, but it wasn't a big-time success.

"By 1937 Taylor had perfected a product using a milk base and vegetable fat. And he had motorized the gadget. He started selling the product to bakers in New York. It saved them $1 a gallon on whipping cream. The idea spread to other cities."

In Nov. 1942 the War Food Administration issued an order prohibiting the sale of whipping cream in America. After dairy interests forced Taylor to leave Chicago, he

picked up a partner, Eric R. Swanson, who is still with him, and in Dec. 1943 started a business in Detroit. [Note: Swanson lived most of his life in Dearborn.] Though dairy people continued to oppose him, his "business soared. In 1944 it jumped from 1,400 to 20,000 gallons a month. He sold at wholesale, then added half pints for the home trade. Now he claims 1,500 independent distributors here [in Detroit]. But along came a War Food Administration order placing a 19 per cent limit on all fats–animal or vegetable–used in his product [which combined a milk base with vegetable fat]. WFA also cut his milk quota. So he started using soy milk as a base, producing an all-vegetable product.

"Taylor drew the fire of OPA [Office of Price Administration], too. He says it is demanding damages for overcharges which would put him out of business. But Taylor isn't through. He grossed $267,000 last year. He added a plant in Dearborn to his start in Detroit. He's planning to market soy milk, butter, cheese [tofu?], and frozen dessert [soy ice cream]. There is an indication that Henry Ford is interested."

Note 1. This is the earliest English-language document seen (March 2007) that uses the term "frozen dessert" to refer to soy ice cream.

Note 2. Herbert Marshall Taylor learned how to make soymilk and soy-based whipped topping from Bob Smith and Rex Diamond at Henry Ford's George Washington Carver Laboratory in Dearborn.

"'The dairy lobby in Washington [DC] is powerful,' says Taylor. 'But I've been fighting the dairy interests for 12 years. They'll never stop me.'" A photo shows Mr. Taylor.

An ad below this article (not in *The Detroit News*, but in Rex Diamond's scrapbook; original source and date unknown) is titled "What is Delsoy? It's the dessert topping that's winning the enthusiastic approval of housewives by the hundreds of thousands. Delsoy is the original topping made of natural vegetable products." The ad shows illustrations of two non-dairy whip toppings: (1) In the foreground, "Delsoy Super Whip: Instant Dessert Topping" which is sold in a pressurized can. The ad states: "Introduced in August 1944, the first product of its kind, Delsoy dessert topping has gained tremendous popularity. Continuing to grow by leaps and bounds..." (2) In the background, "Delsoy: A delicious whip," a refrigerated perishable product which is sold in a half-pint paper container shaped like a truncated cone.

580. Andreae, W.A.; Chalmers, E.A.; McFarlane, W.D. 1945. Legume and cereal sprouts as a dietary substitute for fresh vegetables. *Scientific Agriculture (Ottawa)* 25(8):504-23. April. [14 ref]

• ***Summary:*** A detailed description is given of several methods developed for sprouting cereal and legume seeds in bulk. Wooden tubs were found best for sprouting soybeans (Mandarin variety was used), Windsor broad beans, vetch, and cereals. Recipes for use of the sprouts are given. Served with tomato sauce or in a salad, parboiled and cooled soybean sprouts were disliked by more people than liked them. They were found tough, required too much chewing, and the flavor was not well liked. Address: Macdonald College, McGill Univ., Montreal, QUE, Canada.

581. Harman: New Canadian domestic soybean variety. 1945. Seed color: Yellow (straw), hilum black.

• ***Summary:*** Sources: Morse, William J.; Cartter, J.L.; Probst, A.H.; Williams, L.F.; Saboe, L.C.; Heuskinveld, D.; Collins, F.I.; Kroeber, O.A.; Kalton, R.R.; Feaster, C.V.; Geeseman, G.E.; Lawrence, R.E. 1945. "Results of the Cooperative Uniform Soybean Tests, 1944: Part I. North Central States." *RSLM* (U.S. Regional Soybean Laboratory Mimeograph, Urbana, Illinois) No. 125. April. 95 p. Not for publication. See p. 37. The named varieties in the Uniform Test, Group II, include Harman. Source: Dominion Experiment Station, Ontario. Origin: Selection from Manchu.

Morse, W.J. 1948. "Soybean varietal names used to date." Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26. See p. 4. "Harman–Canada Experiment Station."

USDA Production and Marketing Administration [Grain Branch]. 1948. "Soybean varieties: Descriptions, synonyms and names of obsolete or old and seldom grown varieties." Washington, DC. 25 p. Aug. See p. 7. "Harman–Selection from the Manchu variety by the Dominion Experiment Station, Ontario, Canada. Maturity, early; pubescence, tawny; flowers, purple; pods, two- to three-seeded; shattering, medium; seeds, straw yellow with black hilum, about 2,900 to the pound; germ, yellow; oil, 19.1 percent; protein, 42.6 percent; iodine number, 135."

Bernard, R.L.; Juvik, G.A.; Nelson, R.L. 1987. "USDA soybean germplasm collection inventory." Vol. 1. INTSOY Series No. 30. p. 10-11. Harman is in the USDA Germplasm Collection. Maturity group: III. Year named or released: 1943. Developer or sponsor: Department of Agriculture, ES (Experiment Station), Harrow, Ontario, Canada. Literature: 13, 14. Source and other information: Selected from 'Manchu'. Prior designation: None. Address: USA.

582. *Toronto Daily Star (Canada).*1945. Use soy bean flour to keep loaf fresh. May 3. p. 2.

• ***Summary:*** "Ottawa [Ontario], May 3–Mouldy bread, the age-old problem of sea cooks and ordinary housekeepers, may be ended by some kitchen magic of four Canadian navy cooks. Soy bean flour, they have found, added to bread, gives it richer flavor, higher nutritional value and works the miracle of keeping it fresh for at least 19 days.

"Canadian bakery concerns have already expressed interest in the discovery by Warrant Cookery Officer Alexander S. Jarvis..." Address: Special to The Star.

583. Doig, James L. 1945. Soy is a valuable food ingredient, not a substitute. *Soybean Digest.* May. p. 16, 18, 20.
• ***Summary:*** Note: This is the earliest document seen (Nov. 1999) that uses the word "soy" in the title (in the form "soy is") to refer to soy products; before this time "soy" always referred to soy sauce. Address: Canadian representative, A.E. Staley Mfg. Co.

584. *Soybean Digest.*1945. Grits and flakes from the industry: Henry Egly to Victory Mills in Toronto. May. p. 30.
• ***Summary:*** "Henry D. Egly has announced his resignation as manager of the A.E. Staley plant at Richmond [sic, Painesville], Ohio and effective May 1, he joined the Victory Mills, Ltd., Toronto, Ontario, a subsidiary of the Canadian Breweries, Ltd. The Victory Mills has just recently started operating a new soybean processing plant." Replacing Mr. Egly at Staley is Thomas Longbons, his assistant. Longbons' new assistant is James Creel.

585. MacDowell Brothers. 1945. If you are on a diet... (Ad). *Toronto Daily Star (Canada).* June 11. p. 8.
• ***Summary:*** "... requiring special foods, particularly those with low carbohydrate content, mail coupon below to MacDowell Bros., Brockville, Ont., manufacturers of Special Purpose Foods for 38 years [i.e., since about 1907]– Gluten Flour, Starch-free Bran, Soy Bean Flour, Sugar-free Desserts, Sugarless Sweetener, Sugar-free Beverages, Yeast-Vitamin B Complex, Diabetic Manuals, etc.

"Bread from Genuine Gluten Flour baked by:" Gives the name and address of three bakeries [probably located in Toronto or Brockville].

"Special purpose foods–Sold by: T. Eaton Co., Limited (Toronto, Canada). Simpson's Food Department. Michie & Co., 7 King St., West. Canadian Health Aids Company, 8 Richmond St., East."

Note 1. This ad also appeared in the issue of June 27 (p. 17). A similar ad, with a different format but much the same information, appeared on 13 Feb. 1946 (p. 16).

Note 2. An ad in this newspaper dated 16 Jan. 1934 (p. 7) is for MacDowell's Merrillized yeast (with added vitamin B). A subsequent ad in this newspaper dated 20 Nov. 1944 (p. 14) is for MacDowell's Gluten Bread. Address: Brockville, Ontario.

586. Dimmock, F. 1945. Soybean growing in Canada. *Soybean Digest.* June. p. 8-9.
• ***Summary:*** Canadian soybean production has more than quadrupled in 4 years. The soybean was the first grown in trial plots at Guelph, Ontario, in 1895. It was largely lost sight of during the next 30 years.

"According to official statistics the soybean crop in Canada totalled approximately 45,000 acres in 1944, of which 44,700 acres were grown in Ontario... Only last year one of the finest and most up-to-date processing plants on the whole continent was put into operation, and is capable of handling 3 million bushels of soybeans annually."

"Of the varieties grown at present, Mandarin (Ottawa), and A.K. (Harrow) are the most widely used. Mandarin (Ottawa) is early maturing and possesses many other excellent characteristics, among them being the ability to yield well, high resistance to lodging, and good plant type. A.K. (Harrow) is later in maturity, higher-yielding and produces seed of excellent quality. Both are selections which have been developed as the result of the breeding program conducted by the Dominion Department of Agriculture. Other popular varieties are O.A.C. No. 211 and Manchu. More recently new varieties made available through breeding work in the Dominion are Pagoda, Goldsoy, Kabott, Capital and Harmann."

In Canada, the stage is now set for an expansion of soybean production. High yielding, well adapted varieties are available and good market facilities have been provided.

Note: This is the earliest document seen (Oct. 2004) that mentions the soybean variety Capital. Address: In Charge, Soybean Breeding Work, Central Experimental Farm, Ottawa.

587. *Soybean Digest.*1945. Canada climbs aboard soybean bandwagon with Victory Mills Ltd. June. p. 9.
• ***Summary:*** Victory Mills Ltd. was recently constructed on 5½ acres of vacant land on Toronto's busy waterfront. The continuous solvent extraction plant is now actively crushing soybeans, and "is the last word in mechanical ingenuity and oil processing technology." It is bounded on two sides by deep water anchorage and served by railway sidings, and "is designed to get the utmost value out of the humble soybean."

"Victory Mills Limited is the answer to Canada's vegetable oil paradox; Canada is one of the largest consumers, per capita, of vegetable oils in the world... yet, Canada is one of the lowest producers. The fault has been inadequate processing facilities. Consequently, Canadian farmers could see no point to growing soybeans on a big scale.

"On the other hand, Canadian industrialists were reluctant to build a modern soybean plant, if they had to rely on imports. This picture changed almost overnight owing to the courage and foresight of Canadian business men, headed by E.P. Taylor, chairman of the board of Canadian Breweries Limited, and also, chairman of the board of Victory Mills Limited. Convinced that the soybean had a great future, and convinced that Canadian farmers would be

quick to take advantage of opportunity, these men built Victory Mills. Their judgment has already been proven sound. Canadian soybean acreage is starting to jump"–from a trifling 200,000 bushels in 1942 to 686,600 bushels in 1944. "That's a long way from Victory Mills' present 3 million bushel capacity so Canada will have to depend on U.S. farmers for some time to come."

An architect's drawing shows an aerial view of the Victory Mills plant. A photo shows the interior of the plant.

588. *Soybean Digest.*1945. Bees offer soy market. July. p. 15. [1 ref]
• ***Summary:*** Beekeepers offer a new market for soy flour, which is now being used extensively as an ingredient in pollen supplements fed to bees. Pollen is a high-protein food which bees gather from flowers and store in their hives. Pollen supplies in the hive tend to run low during the spring, and it is at this time that supplementary feeding with pollen substitutes is done.

Experimental feeding of bees with soy flour in pollen supplements has been conducted by: (1) the U.S. Bee Culture Laboratories at Madison, Wisconsin; (2) the division of entomology at the University State Farm, St. Paul, Minnesota; and (3) the Dominion Experiment Farm, Ottawa, Canada.

589. Victory Mills Ltd. 1945. Laborers needed immediately for full-time or part-time employment... (Ad). *Toronto Daily Star (Canada).* Sept. 6. p. 11.
• ***Summary:*** "... on building construction at Victory Mills Limited. Apply to National Employment Service, 174 Spadina Avenue, or direct to Pigott Construction Co., Ltd. Fleet and Parliament Streets, Toronto. Order No. 48."

590. Coolidge, Marian. 1945. Soy is original, not substitute (Abstract). *Let's Live.* Sept. p. 8.
• ***Summary:*** This ½-page article is "Highlighted from an article by Jas. L. Doig in *Soybean Digest."* That article is: Doig, James L. 1945. "Soy is a valuable food ingredient, not a substitute." *Soybean Digest.* May. p. 16, 18, 20.

591. Harkness, Ross. 1945. Canada ace high in France: Hope we understand plight. *Toronto Star (Ontario, Canada).* Oct. 6. p. 4.
• ***Summary:*** The French are grateful to Canada for the important part they played in winning World War II and liberating France. Food is still scarce and rationed in France. "Beginning in November bread will be made with a mixture of whole wheat and soya flour and will be unrationed."

592. Bailey, Ethel Zoe. 1945-1948. Soja max–U.S. and Canadian sources. Ithaca, New York: L.H. Bailey Hortorium. 1 card. Unpublished.
• ***Summary:*** *Soja max* is an early scientific name for the soybean given by Charles V. Piper in 1914; it was superseded / replaced by the current scientific name *Glycine max* (L.) Merrill in 1917. This hand-written index card is in the Bailey Hortorium's index system of nursery catalogs and/or botanic garden seed lists developed by Ethel Zoe Bailey. On the card are two-part coded entries referring to botanic gardens or nurseries. Part 1 is the code for the name of the botanic garden, and part 2 is the last two letters of the earliest year in which the plant for that card appeared in this garden's catalog. For example "Ottawa 45" refers to the 1945 catalog of the Arboretum in Ottawa, Canada. There are only two listings for *Soja max* from U.S. and Canadian sources:

(1) Ottawa 45–Arboretum, Central Experiment Farm, Ottawa, Ontario, Canada. (2) Asgrow 48–Asgrow Export Corp., Associated Seed Growers, Orange, Connecticut, USA. Address: L.H. Bailey Hortorium, 462 Mann Library, Cornell Univ., Ithaca, New York 14853-4301. Phone: 607-255-7981. Fax: 607-255-7979.

593. Bailey, Ethel Zoe. 1945. Soja hispida–U.S. and Canadian sources. Ithaca, New York: L.H. Bailey Hortorium. 1 card. Unpublished.
• ***Summary:*** *Soja hispida* is an early scientific name for the soybean given by Konrad Moench in 1794; it was superseded / replaced by the current scientific name *Glycine max* (L.) Merrill in 1917. This hand-written index card is in the Bailey Hortorium's index system of nursery catalogs and/or botanic garden seed lists developed by Ethel Zoe Bailey. On the card are two-part coded entries referring to botanic gardens or nurseries. Part 1 is the code for the name of the botanic garden, and part 2 is the last two letters of the earliest year in which the plant for that card appeared in this garden's catalog. For example "Ottawa 45" refers to the 1945 catalog of the Arboretum in Ottawa, Canada. There is only one listing for *Soja hispida* from U.S. and Canadian sources:

(1) Ottawa 45–Arboretum, Central Experiment Farm, Ottawa, Ontario, Canada. Address: L.H. Bailey Hortorium, 462 Mann Library, Cornell Univ., Ithaca, New York 14853-4301. Phone: 607-255-7981. Fax: 607-255-7979.

594. Bouthillier, Louis-Philippe. 1945. The amino acid deficiencies of soybean protein. PhD thesis, University of Illinois at Urbana-Champaign. 118 p. In: Doctoral Dissertations Accepted by American Universities, 1945. [10+ ref]
• ***Summary:*** The author received his MSc degree from the Univ. of Montreal, Canada. Address: Univ. of Illinois at Urbana-Champaign.

595. Chao, Buwei Yang. 1945. How to cook and eat in Chinese. New York, NY: The John Day Co. xviii + 262 p.

Foreword by Hu Shih. Preface by Pearl S. Buck. Illust. Index (of both recipe numbers and page numbers). 21 cm. An Asia Press Book. New editions, 1949 and 1963.
• ***Summary:*** A superb, funny, authentic Chinese cookbook. The "Author's note" begins: "I am ashamed to have written this book. First, because I am a doctor and ought to be practicing instead of cooking. Secondly, because I didn't write the book... You know I speak little English and write less."

The section on "Conventions and hints" states: Clear-simmering is slow cooking without soy sauce. Red-cooking is slow-cooking with soy sauce (p. xvi).

In Chapter 2 titled "Eating materials," the section on "Grains" (p. 21-22) notes: There are two important supplementary starchy foods in the Chinese diet: Sweet potatoes (the poor man's luxury) and "beans: red beans [probably azuki], horse beans, and above all soy beans and their products. Bean milk and bean curd [tofu] are regarded in this country [America] as specialties. But in China, cabbage and bean curd mean a poor family's home cooking. Soy beans not only give starch, but are also the most important source of protein, since most people cannot afford much animal food."

In Chapter 3, "Cooking materials": "The commonest vegetable oils in China are [soy] bean oil and peanut oil" (p. 24). Soy sauce is a "salter," which is not freely exchangeable with salt. It is never used in the white kind of cooking but it is used (sometimes with salt) in red-cooking and red-stir-frying (p. 25).

"Flavorers.–The most important flavorer of Chinese food is soy-bean sauce or soy sauce for short. With soy sauce you can cook an untiring series of Chinese dishes with nothing but those foods you can get at any American chain market. In fact even pretty good soy sauce can now be bought at such chain markets. Chinese dishes are called red-cooked or white-cooked according as soy sauce is or is not used. But even in the white-cooked dishes, especially the slow-cooking ones, the morsels, or rather the chopstickles [chopsticks], of food are often dipped in soy sauce before eating. One thing we never do, however, is to pour soy sauce on rice. When Americans do that, it looks funny. It must taste funny too.

"Soy sauce is made from fermented boiled soy beans in which salt is added. Several kinds are now seen in this country. The least useful is called in Cantonese *chü-yau,* "pearl sauce," a dark thick sauce without too strong a taste, which lends much color to the dish and is much used in restaurants. Next is *shang-ch'au* "raw extract," which is light brown, tastes very fine, but is not colorful enough for red-cooking and not available in any great quantity. The sauce most suitable for general purposes is called *ch'au-yau,* "extracted sauce," which fortunately is made by several manufacturers in this country and Canada. All varieties of soy sauce are also called by the general name *shi-yau* in Cantonese.

"Similar to soy sauce is a soy jam, which is much thicker in consistency. In China, fermented flour jam is even more common. Good samples of such jams are scarce in this country.

"There is a whole class of whitish savory powder made mostly from gluten of flour. We shall call it **taste powder** in the recipes. The oldest form of this is made from the dried fermented muscle-of-flour (flour gluten), often made in old Chinese households. Almost thirty years ago the Japanese manufactured, from hydrolized gluten, a powder called *ajinomoto,* 'prime element of taste.' Later in Chinese firm manufactured *ve-tsin [vetsin],* "essence of taste, which is still found on some shelves of Chinatown. 'Pickup' and *mee boan* taste powders are made in this country and sold mostly in Chinatown. You will note that relatively few recipes in this book call for the use of taste powder." "Other common flavorers are oyster sauce, sesame oil, and soy bean cheese *(fu-yü)* (p. 27-28).

Chapter 6, "Methods of cooking," includes a discussion of red-cooking (stewing with soy sauce, which gives a reddish color. "Red-cooking is the typical family cooking." Cooking time varies from 2-6 hours) and clear simmering (without soy sauce).

Soy-related recipes include: Bean curd stirs meat slices (p. 61). Bean curd stirs shelled shrimps (p. 118). Arhat's fast or Vegetarian's ten varieties (with wheat gluten, bean curd skin [yuba], fried puffy bean curd, soy sauce, etc., p. 156-57). Plain stirred bean curd (p. 158-59). Oyster sauce bean curd. Mushrooms stir bean curd. Scallions stir bean curd (p. 159-60). Pot-stuck bean curd (p. 160). Bean curd and meat-slice soup (p. 164). Huichou pot (with fried bean curd [large triangles or small cubes], p. 181-82). Sandy-pot bean curd (p. 183). Soy jam noodles (p. 201-02, with ½ can *yünshi* soy jam {get in Chinatown}; this is typical northern food).

Page 158 states: "Bean curd is made of soy beans. It has only a faint flavor of its own. That is why it can be easily combined with other materials. Bean curd has the same nourishment value as bean, but in a much more digestible and palatable state and forms an important ingredient of the food for the poor people in China. It is cheap and easy to prepare. Those who can afford fancy dishes often combine it with meat, fish, and other sea foods. But just plain (Chinese) cabbage and bean curd connotes home sweet home. Bean curd is a versatile cooking thing. It can be boiled plain, with a little of any flavoring. It can be fried in deep oil by whole pieces so that the outer surface will become browned. We often stuff seasoned ground meat inside it like stuffed cucumber and then red-cook the whole thing. Bean curd can even be eaten as part of an American salad." The Chinese characters for all recipe names are given on pages 232-46. Address: Cambridge, Massachusetts.

596. Lager, Mildred. 1945. The useful soybean: A plus factor in modern living. New York and London: McGraw-Hill Book Company, Inc. xii + 295 p. Illust. General index. Index of recipes. 22 cm.

• ***Summary:*** One of the most important and innovative books on soyfoods ever written. Contents: Preface. 1. Agriculture's Cinderella: America discovers the soybean, our wonder beans, soy as a food in the United States, soy in rehabilitation food programs, soybeans as an emergency crop, soybean terminology. 2. World-wide use of soybeans: A real antique, monarch of Manchuria, soybeans in mechanized warfare–Germany, soybeans in other countries (USSR, Italy, Spain, Belgium, Holland, Norway, Denmark, Sweden, Great Britain, Canada), soybeans in Lend-Lease and United States Agricultural Marketing Administration, Food for Greece, soybeans and the Mexican Indian, soybeans in Hawaii (Mr. C.G. Lennox). 3. Soybeans and industry: The versatile soy, uses of soybean in industry, soybean paint (from soy oil, incl. Duco finishing), soybean protein (used in making plywood, plastics, water paints, paper sizing, leather finishes, and insecticide sprays), Henry Ford and soybeans, soybean glue (I.F. Laucks and the firms he has licensed turn out some 30,000 tons of soybean glue annually), rubber substitute (Norepol), paper industry (Glidden), plastics, soy-cotton helmets, firefighting compounds, lecithin, fertilizers. 4. Nutritional nuggets: Food value of soybeans and soy products (vegetable or edible types of soybeans, protein, fat & carbohydrate, minerals, vitamins, lecithin, alkaline ash, economy, exaggerated claims), principal uses of soybeans and soy products (meat substitutes, meat enrichers, fortifying foods with soy flour). 5. From soup to nuts: Green beans, dry beans, frozen beans, roasted soybeans, sprouted soybeans, the cow of China–soy milk, the meat without a bone–tofu or soy cheese, the little giant among protein foods–soy flour, soy grits, puffed grits, soy oil, miscellaneous soy products (soy butter [soynut butter, p. 99-100], sandwich spreads, malts, coffee substitutes, soy sauce, soy albumen–a new product, greatly improved during the past two years, is now used to "replace egg albumen in candy manufacture" [as in marshmallows]).

Note 1. This is the earliest English-language document seen (March 2001) that refers to tofu as 'the meat without a bone.' In 1938 Horvath called tofu 'the meat without the bones.' Note 2. This is the second earliest document seen (Aug. 2002) in which the soybean is called the "cow of China."

Note 3. This is the earliest English-language document seen (Aug. 2003) that uses the term "soy albumen" (or "soy albumens") to refer to isolated soy protein as a product.

6. The blazed trail: Introduction (history and pioneers), our tardy acceptance, food pioneers (health-food stores, Dr. W.D. Sansum of Santa Barbara and soy bread, allergy studies, vegetarians, Seventh-day Adventist food companies, meatlike products, Madison College of Tennessee, Loma Linda Food Co., the International Nutrition Laboratory and Dr. H.W. Miller, special dietary concerns and diabetic diets), establishing soybeans in the kitchen (The Edison Institute and Henry Ford, the USDA and the U.S. Bureau of Home Economics, the Agricultural Marketing Administration, U.S. railroads, the Soy Products Division of the Glidden Co., the Soy Flour Association). 7. The challenge of nutrition: The dangers of hidden hungers, nutrition and health, corrective nutrition, starch-restricted diets, meatless diets, allergy diets, bland diets, building diets, reducing diets, acidophilus culture, lecithin. 8. Our wonder crop: Jack and the beanstalk, early history, new varieties, aids to the industry (Regional Soybean Industrial Products Laboratory, American railroads, American Soybean Association, Fouts Brothers of Indiana, *Soybean Digest* and George Strayer in Hudson, Iowa, Soy Flour Association with Edward Kahl as first president, Soya Kitchen in Chicago (Illinois) opened in Jan. 1943, National Soybean Processors Assoc., National Farm Chemurgic Council), educational program, restrictive regulations. 9. Soybeans and the farmer: Varieties, sources of information, seeding and inoculating, harvesting, grading, soybean diseases, crop rotation, damaged beans. 10. Tomorrow: Acreage and production, soybeans on the farm, soybeans in nutrition, postwar industrial uses, future improvements. 11. A few suggestions for better living: Kitchen diplomacy, personal opinions, soybeans for everyone. Recipes: Green soybeans, dry soybeans, sprouted soybeans, roasted or toasted soybeans, meat-substitute dishes, soy-enriched meat dishes, soy noodles, macaroni, spaghetti, sauces and gravies, soups, salads, dressings, soy spreads, soy milk, tofu or soy cheese, soy butter, soy cereals, soy desserts, soy candies, soy beverages, soy-flour recipes, bread and muffins, pancakes and waffles, soy gluten recipes, baking-powder biscuits, pastry, cookies and doughnuts, cakes.

Contains recipes for "Soy milk molasses shake (p. 238). Soy puddings. Soy ice cream (p. 250; "Soy milk may may be used in place of milk in ice-cream recipes... adding whipped cream"). Soy fruit ice cream. Soy chocolate dessert (Eggless) (p. 250-51). Soy shake "(p. 254, made in a "liquefier or mixer").

The story of Allied aid to Greece [p. 24-26] is one of the great mercy stories of World War II. Starting in March 1942, as many Greeks were starving, the first mercy ship sailed to Greece with food and medicine. Up to Nov. 1943, the United States through Lend-Lease sent 82 million pounds of food to Greece. A number of these foods (including soup powders, stew mixes, and spaghetti) were based on soy flour and grits, and specifically developed to suit Greek tastes.

Concerning Henry Ford (p. 35-38), his "first experiments were made in a laboratory in connection with

the Edison Institute in 1930. In these experiments, several tons of wheat were used, also several thousand bushels of carrots; sunflower seeds, which have a high oil content; cabbages; onions; and cornstalks. It was not until December, 1931, after a long series of experiments with the soybean, that Mr. Ford and his chemists felt that they were at last approaching a solution to the problem of finding a basic farm material from which the ordinary farmer could develop a commercially profitable product."

Note 4. This is the earliest English-language document seen (March 2007) that uses the term "Soy ice cream" (p. 250).

Note 5. This is the earliest document seen (July 2007, one of two) that uses the word "Cinderella" in connection with the soybean. The author, however, does not elaborate on this idea.

Note 6. This is the earliest English-language document seen (Oct. 2001) that uses the term "soy-flour." Address: Southern California.

597. Lager, Mildred. 1945. Preface (Document part). In: Mildred Lager. 1945. The Useful Soybean: A Plus Factor in Modern Living. New York and London: McGraw-Hill Book Company, Inc. xii + 295 p. See p. vii-ix.

• ***Summary:*** "We of the occidental world are just discovering that soybeans are indeed nuggets of gold in our modern civilization. During the last twenty-five years [i.e., since 1920], they have mushroomed from an almost unknown forage crop to one of our most important cash crops, vital to the fields of agriculture, commerce, nutrition, and industry. Nutritionally soybeans have become a vital food for a world at war and a postwar world at peace. Industrially they are a challenge to the chemists' flasks and test tubes; for more than two hundred commercial products have been made from the little beans. Hence soybeans and soybean products are indeed destined to be a vital plus factor in our world of tomorrow.

"Food has always been my hobby. When Fate, that unseen hand that sometimes guides us to our rightful groove in life, gave me firsthand experience with the miracles of proper diet, teaching fundamental facts on nutrition became my goal. I have tried to pass on the message of better eating via the platform, the printed page, and the radio, and for the last dozen years have enjoyed the unusual opportunity of occupying a vantage point on a busy crossroad of nutrition. I have seen, too, the value of soybeans in the so-called 'corrective regime,' and it has convinced me of their rightful place in the average diet.

"I experimented with soy as a food, secured special soy products for special diets, made up recipes, and in my classes taught the cooking of soybeans when they were practically unknown, when soy was eaten because it was soy and regardless of taste or palatability. In 1942, when soybeans became prominent as a war emergency food, a collection of these recipes was published under the title of '150 Ways to Use Soybeans.'"

"Because my main interest in soybeans and soy products is nutritional, the purpose of this book is to help bridge the gap from the unusual to the usual. I have tried to present the story of Asia's ancient food in a true, authentic manner–to give credit where credit is due. I am not a vegetarian, not affiliated with any organization or group advocating a meatless diet. I believe that proper nutrition and common-sense living are man's best medicine."

"I want to acknowledge the material, encouragement, and help that I have received from the men and women of medicine, research, industry, and business as well as homemakers and friends. I am especially grateful to

"Edward J. Dies, Soy Flour Association, Chicago, Illinois.

"E.L. Rhoades, Soy Flour Association, Chicago, Illinois.

"Kent Pellett, Soybean Digest, Hudson, Iowa.

"Edward Kahl, Los Angeles, California.

"National Soybean Processors Association, Chicago, Illinois.

"Dr. Walter C. Alverez, Mayo Clinic, Rochester, Minnesota.

"Dr. Francis Pottenger, Jr., Monrovia, California.

"Dr. Irving D. Ewart, Hollywood, California.

"Dr. J.A. LeClerc, U.S. Department of Agriculture, Washington, D.C.

"W.J. Morse, Department of Agriculture, Washington, D.C.

"Dr. Louise Stanley, Chief, Bureau of Home Economics, Washington, D.C.

"Donald S. Payne, Chief of Soya Products Section, Food Distribution Administration, Washington, D.C.

"Dr. Clive M. McCay and Mrs. Jeanette McCay, Cornell University, Ithaca, New York.

"Dr. H.W. Miller, International Nutrition Laboratory, Mount Vernon, Ohio.

"Col. Rohland A. Isker, Quartermaster Corps, Chicago, Illinois.

"Prof. Oscar Erf, The Ohio State University, Columbus, Ohio.

"National Farm Chemurgic Council, Columbus, Ohio.

"Agricultural Experiment Station, University of Illinois, Urbana, Illinois.

"Agricultural Experiment Station, Iowa State College, Ames, Iowa.

"Purdue University, Lafayette, Indiana.

"College of Agriculture, University of California, Berkeley, California.

"Department of Home Economics, University of Illinois, Urbana, Illinois.

"Bureau of Home Economics, U.S. Department of Agriculture.

"A.A. Levinson, Glidden Company, Chicago, Illinois.

"H.A. Olendorf, Spencer Kellogg & Sons, Inc., Decatur, Illinois.

"James L. Doig, Floya Milling Company, Montreal, Canada.

"J.A. Audiss and L.E. Bauer, Loma Linda Food Company, Arlington, California.

"Russell G. East, The Pennsylvania Railroad, Richmond, Indiana.

"Ollie Jones, Los Angeles, California.

"Madison College, Madison College, Tennessee.

"Ford Motor Company, Dearborn, Michigan.

"The Fox Valley Canning Company, Hortonville, Wisconsin.

"The Michigan Paper Company, Plainwell, Michigan.

"I.F. Laucks, Inc., Seattle, Washington.

"The Baltimore & Ohio Railroad, Baltimore, Maryland.

"John Deere, Moline, Illinois.

"Hawaiian Sugar Planters' Association, Honolulu, Hawaii.

"Maren Elwood, Hollywood, California (for her help in editing the manuscript).

"Ellender McGraw, my secretary." Address: Southern California.

598. Sessional papers–Legislature of the Province of Ontario. Vol. 1. 1945. Toronto, Ontario, Canada: Government Printing Office. See p. 16. *
• ***Summary:*** On page 16: "Sunsoy Products, Ltd., 300,000."

599. Eaton (T.) Co., Limited. 1946. Order foods early Tuesday for delivery Wednesday (Ad). *Toronto Daily Star (Canada).* Jan. 7. p. 29.
• ***Summary:*** "Soya Bean Sauce, 7½-oz. bottle–15¢.

"Eaton's Tuck Shop Worcestershire Sauce, 5-oz. bottle–15¢." Address: College St., Toronto. Phone: TR. 3311.

600. Doig, James L. 1946. Canadian Navy adopts high protein bread. *Soybean Digest.* Jan. p. 16.
• ***Summary:*** "The interest of the [Canadian] Navy nutritionists in soy flour dates back to 1917, to the hectic days of unrestrained submarine warfare. Captured German submarines were found to be carrying concentrated emergency rations containing roughly 50 percent soy, in the form of a dry biscuit. They were not particularly palatable, but the physical condition of the men left little doubt of their nutritional value. Experiments were undertaken in Britain with the object of supplying our ships with a similar ration... around 1924 a very palatable high fat soy flour named Soyolk was produced in Britain. The firm producing it sent over one of the best salesmen I have ever met. He succeeded in selling this new soy flour to practically every large baking unit between Halifax and Vancouver."

From this soy flour Moirs Limited of Halifax, Canada, developed a commercial high-protein bread named Soyota. The ingredients were 98 lb wheat flour, 9 lb high-fat soy flour, 3 lb shortening, 2 lb each sugar and salt, 1 lb 12 oz shortening, 1.5 lb each skimmed milk powder and malt flour, 3 oz. mineral salt, and 62 lb water. Although practically unadvertised, Soyota soon became a good selling bread.

After World War II began, the author and several Canadian firms developed a ration biscuit which contains 50% soy flour and is part of the emergency ration kits carried by all Canadian Naval Units. See also "Life Raft Ration," by Doig in *Soybean Digest,* March 1943. Address: Canadian Representative, A.E. Staley Mfg. Co., Montreal, P.Q.

601. *Toronto Daily Star (Canada).*1946. Appointed vice-president Victory Mills Limited. Feb. 12. p. 10.
• ***Summary:*** "C.L. Rogers, formerly General Sales Manager, has been appointed Vice-President of Victory Mills Limited, a division of Canadian Breweries Limited. A graduate engineer of McGill University, Mr. Rogers spent some time with Canadian General Electric and the Hydro Electric Power Commission of Ontario. During the war [World War II] he was with the Department of Munitions and Supply. He joined Victory Mills in June, 1945."

A large portrait photo shows C.L. Rogers.

602. Ontario Retail Feed Dealers' Association. 1946. Year book, 1944-45. Toronto, Canada. 91 p. Undated.
• ***Summary:*** On page 11 is a full-page ad that reads: "Toronto Elevators Limited. Toronto. Montreal. Grain. Linseed oil and meal. Soy bean oil and meal. Master Feeds." Inside the diamond-shaped logo is the word "Telco" and a drawing of many large grain elevators. A photo shows the same large elevators; on them is written "Master Feeds." The book contains the name, address, and phone number of many retail dealers. No such information is given for Toronto Elevators.

On page 3 is a list of the Association's officers for 1944-1945, and another list for 1945-46. The president for both terms was W.M. VanSickle of Campbellville.

Note 1. This is the earliest document seen (Jan. 2010) stating that Toronto Elevators Ltd., in Canada, is processing soybeans.

Note 2. Letter from Dave Duttenham, Executive Vice-President of the Ontario Grain & Feed Association in Ontario. 1997 March 3. His Association owns this Year Book. Looking at page 3, he would guess that was published in about January or February of 1946. Address: Toronto, Canada.

603. *Soybean Digest.*1946. The Soybean Digest (masthead). Feb. p. 3.

• ***Summary:*** "Geo. M. Strayer, Editor. Kent Pellett, Managing Editor. Publishers' Representative: Ewing Hutchison Co., Chicago. Vol. 6, No. 4.

"Published on the 15th of each month at Hudson, Iowa, by the American Soybean Association. Entered as second class matter, November 20, 1940... Forms close at 1st of month. Subscription price to association members, $1.50 per year; to non-members, $2.00 per year; Canada, $2.50; other foreign, $3.00.

"The American Soybean Association–Officers: President, Howard L. Roach, Plainfield, Iowa; Vice President, Walter McLaughlin, Decatur, Illinois; Secretary, Geo. M. Strayer, Hudson, Iowa; Treasurer, J.B. Edmondson, Clayton, Indiana.

"Directors: Ersel Walley, Ft. Wayne, Indiana; John Dries, Saukville, Wisconsin; Jacob Hartz, Stuttgart, Arkansas; David G. Wing, Mechanicsburg, Ohio; Harry A. Plattner, Malta Bend, Missouri; Gilbert Smith, Newman, Illinois; John Sand, Marcus, Iowa."

604. Simpson's. 1946. Luxury fancy fruit baskets. No charge for delivery within Simpson's suburban delivery area. Phone orders filled (Ad). *Toronto Daily Star (Canada).* April 8. p. 15.
• ***Summary:*** "Victory Soy Bean Sauce, 7½-oz. bottle–15¢." Address: Basement, Toronto. Phone: TRinity 8111.

605. *Toronto Daily Star (Canada).*1946. 48 for 44 accord for Victory Mills. April 9. p. 2.
• ***Summary:*** "A closed shop agreement, providing a 44-hour week with take-home pay equivalent to 48 hours, has been signed between Victory Mills Co. [sic, Ltd.] and the International Chemical Workers' union, the union announced today.

"The contract also grants pay for six statutory holidays not worked, one week's vacation with pay after six months' employment and two weeks with pay after one year.

"William Edmiston, Canadian director of the union, emphasized that new pay provisions 'do not make necessary the same production in the shorter work week.'"

Note: Apparently the standard work week in Canada in 1946 was 48 hours, or six 8-hour days.

606. *Soybean Digest.*1946. Grits and flakes... from the world of soy: A new soybean variety has been developed at the Morden Experimental Station in Manitoba... April. p. 28.
• ***Summary:*** "... and probably will be licensed shortly, reports the *Family Herald and Weekly Star.* An early yellow variety, it was selected from a cross between Mandarin and Manitoba Brown. A cooperative crushing plant in Altona promoted primarily to process sunflower seeds, is interested in soybeans if a commercial crop can be developed in Manitoba.

Note: Altona (2006 population 3,709) is a predominantly Mennonite community in southern Manitoba about 100 km (62 miles) southwest of Winnipeg and 133 km north of Grand Forks, North Dakota. It is known as "The Sunflower Capital of Canada."

607. Soybean Research Council, National Soybean Processors Assoc. 1946. Proceedings–Conference on Flavor Stability in Soybean Oil. Chicago, Illinois. 98 p. Held 22 April 1946 at the Bismarck Hotel, Chicago, Illinois. [53 ref]
• ***Summary:*** This historic meeting was called by Edward J. Dies, chairman of the board, National Soybean Processors Association. The 28 attendees, listed alphabetically, included: O.H. Alderks (The Procter and Gamble Co.), H.C. Black (Swift and Co.), R.A. Boyer (The Drackett Co.), G.N. Bruce (Durkee Famous Foods), John C. Cowan (Northern Regional Research Lab.), B.F. Daubert (Univ. of Pittsburgh), Edward J. Dies (National Soybean Processors Assoc.), Maurice Durkee (A.E. Staley Mfg. Co.), Herbert J. Dutton (Northern Regional Research Lab.), Egbert Freyer (Spencer Kellogg and Sons, Inc.), Calvin Golumbic (Univ. of Pittsburgh), Warren Goss (Northern Regional Research Lab.), Arne Gudheim (Lever Brothers), J.K. Gunther (Central Soya Co., Inc.), Fred Hafner (Archer-Daniels-Midland Co.), R.G. Houghtlin (National Soybean Processors Assoc.), H.T. Iveson (The Glidden Co.), J. Jakobsen (General Mills, Inc.), N.F. Kruse (Central Soya Co., Inc.), Herbert W. Lemon (Ontario Research Foundation, Toronto, ONT, Canada), Herbert E. Longenecker (Univ. of Pittsburgh), Ralph H. Manley (General Mills, Inc.), Karl F. Mattil (Swift and Co.), R.T. Milner (Northern Regional Research Lab.), W.W. Moyer (A.E. Staley Mfg. Co.), F.W. Quackenbush (Purdue Univ.), H.E. Robinson (Swift and Co.), J.H. Sanders (The Procter and Gamble Co.), L.A. Spielman (The Glidden Co.). Address: [3818 Board of Trade Building, Chicago, Illinois].

608. Holmes, Marie. 1946. Cooking chat [Soybean flour]. *Toronto Daily Star (Canada).* May 1. p. 26.
• ***Summary:*** "Probably no food has had, in recent years, more merited favorable publicity than soybeans and the products made from them. 'It is now recognized that soybean flour is exceptionally rich in high quality protein, minerals and vitamins,' a leading agricultural research specialist has stated.

"At the present time when homemakers are conserving wheat flour, it would be wise to learn something about the use of soybean flour as a partial substitute. Because it is low in starch and gluten, soybean flour should not be substituted entirely for wheat flour but it is an excellent extender."

One cup soybean flour to 3 cups wheat flour in tea biscuit recipes, or 2 cups soybean flour to 11 cups wheat flour in bread recipes.

Gives four points to watch when substituting "soy flour," and discusses its value in special diets–such as those with low starch.

Gives recipes for: Soybean cakes. Soybean muffins (both low starch). Soybean fruit bread.

A new small portrait photo shows Marie Holmes.

609. Hildebrand, A.A. 1946. Diseases of soybeans: Their control. *Canadian Horticulture & Home Magazine* 65(5):129-31, 142. May. Summarized in Soybean Digest, Nov. 1946, p. 26.

• ***Summary:*** A popular account on the control of soybean diseases by seed treatment, proper cultural practices (such as optimum planting rate), and other precautions (weather conditions, wind-borne diseases). Thirteen soybean diseases have been reported in Canada. These include mosaic and bud blight, bacterial blight, and a number of fungus diseases. During the past 3 years at the Harrow plant disease laboratory, seed lots of soybeans have been treated with the seed protectant dusts, Spergon, Arasan, and Fermate. The author says the use of Spergon is compatible with inoculation. In practice, the seed is treated first with Spergon, then inoculated according to the manufacturer's directions.

"Soybeans were first grown in Canada at the Ontario Agricultural College, Guelph, about 1893. They were first distributed to farmers of the province in 1901. For many years they attracted very little attention because as recently as 1940 there were only 10,000 acres altogether in Canada. By 1944, however, the acreage had more than quadrupled itself to 45,000 acres. Of these, 44,700 acres, i.e. 90%, were in Ontario. Most of the Ontario acreage, i.e. some 35,400 acres, were concentrated in the southwestern part of the province in the counties of Essex, Kent, Middlesex, Norfolk, and Lambton." Address: Dominion Lab. of Plant Pathology, Harrow, Ontario, Canada.

610. Krishnaswamy, N.; De, S.S.; Subrahmanyan, V. 1946. Digestibility of soya milk (Letter to the editor). *Science and Culture (Calcutta)* 12(1):51-52. July. [4 ref]

• ***Summary:*** "Soya-bean milk is a highly digestible product. Experience in different parts of the World has shown that it is more easily digested than cow's milk. In America and other countries, persons who are allergic to cow's milk or otherwise experience difficulty in digesting it, experience no such discomfort when using soya-milk. In Canada, where there is no milk shortage, the sweet soya curd is flavoured for feeding children as it produces no digestive disorders.

"Our recent experience with feeding soya milk in child welfare centres has shown that even very young children can drink fair quantities of the milk without any discomfort. Even babies have been fed on soya milk without any ill effect."

"Soya milk forms a soft curd which disperses readily on either side of the iso-electric point. Cow's milk curd remains as such over a wider range."

"Further work bearing on the digestion of soya milk in the animal system is in progress. It is hoped that this study will throw fresh light on the digestibility of other vegetable milks as well." Address: Dep. of Biochemistry, Indian Inst. of Science, Bangalore.

611. Victory Mills Ltd. 1946. "Here's why I'm planting more acreage in soybeans this year!" (Ad). *Blenheim News Tribune (Ontario, Canada).* July. [1 ref]

• ***Summary:*** Blenheim is a town in Kent County, southeastern Ontario, about 10 miles southeast of Chatham. An illustration (line drawing) shows a farmer, dressed in overalls and holding a pitchfork. The text begins: "This Kent County farmer planted a 10-acre trial crop of soybeans last year. They grew well, needed little labor and brought him in $610.00. No wonder he's planting a third of his acreage in soybeans this year.

"Moreover, Ontario farmers can feel sure of a ready market for soybeans. For Victory Mills have invested over $2,500,000.00 in a new plant and want to buy more than 3,000,000 bushels a year."

The ad then gives "5 sound reasons for growing soybeans. 1. Soybeans are a Hardy crop–resistant to drought, light frosts and heavy rains during growing season. 2. They are a Profitable cash crop. 3. There's a Ready Market for all you can grow. 4. Soybeans need a Minimum of Labor–can be harvested with a combine whenever weather is suitable. 5. A real Soil-Builder, improving soil tilth and adding some nitrogen–soybeans fit into any 'crop rotation' planning."

A coupon at the bottom of the page invites the reader to send for a free booklet titled "How to Grow Soybeans–The Profitable Cash Crop." Address: 285 Fleet Street East, Toronto, Canada.

612. Balzli, Jean. 1946. Le soja à travers le monde [The soybean around the world]. *Revue Internationale des Produits Coloniaux et du Material Colonial* 21(204):134-35. Sept. [1 ref. Fre]

• ***Summary:*** Discusses soybean developments in the following countries: Canada, China, USA, Great Britain, Greece, Mexico, Philippines, Hawaii, Switzerland, Sweden. Address: PhD.

613. Victory Mills, Ltd. 1946. Victory Mills Limited (Ad). *Soybean Digest.* Sept. p. 5.

• ***Summary:*** In this half-page black-and-white ad, a photo shows the soybean crushing plant and its 8 tall silos on the Toronto waterfront. Its products are "soybean flours, vegetable oils, and oilcake meals." Address: 285 Fleet Street East, Toronto, Ontario, Canada.

614. *Toronto Daily Star (Canada).*1946. Dominion Linseed Oil. Oct. 10. p. 17.
• ***Summary:*** "An offering of $750,000 4 per cent. first mortgage series 'A' bonds of the Dominion Linseed Oil Co. is being made by Harrison & Co. The bonds, dated Oct. 1, 1946, and maturing Oct. 1, 1961, are being offered at 100 plus accrued interest."

615. *Soybean Digest.*1946. Grits and flakes... from the world of soy: Oilseed crops from western Canada will be processed at Fort William by Edible Oils, Ltd. Firm is headed by K.A. Powell, president of Halley and Carey Ltd., Winnipeg. Nov. p. 28.
• ***Summary:*** "It will process about 30,000 tons of oilseeds yearly." Note: This Fort William is in Ontario province, not in Winnipeg.

616. Elwood, Marjorie. 1946. Cooking chat [Mock almond paste]. *Toronto Daily Star (Canada).* Dec. 16. p. 25.
• ***Summary:*** Contains two recipes for "Mock almond paste." The second calls for "4 ounces soy bean flour." This paste, an alternative to icing, is English in its origin.

The sides of a fruit cake or Christmas cake are seldom iced–a tradition whose origins are obscure.

A portrait photo shows Marjorie Elwood.

617. Elliott, H.G. 1946. The soybean. Its possibilities in W.A. [Western Australia]. *J. of Agriculture, Western Australia* 23(4):285-93. Dec. Summarized in Soybean Digest, Nov. 1947, p. 34.
• ***Summary:*** Contents: Introduction. Economic position. Soybean oil. Uses of oil. Origin. Uses in Western Australia. Name and origin. Description. Climate. Soils. Cultivation. Fertiliser. Inoculation. Sowing. Intercultivation. Harvesting. Varieties. Summary of soybean trials in W.A. (using mostly American or Canadian varieties). Some edible varieties of soybeans (as a green vegetable, a cooking dried beans).

"In Australia, the acreage grown is as yet only small and up to the present time has been mainly experimental." In Western Australia it is doubtful if the soybean could compete as a fodder with other summer-grown fodders.

Varieties: The "Council for Scientific and Industrial Research have obtained best results with Charlee, Haberlandt, Creole and Georgian varieties in Queensland, whilst Manchu Yellow and Haberlandt have been grown with some success in Western Australia and yields as high as 35 bushels per acre have been obtained experimentally.

"Summary of soybean trials in W.A.: The Department of Agriculture of this State has for many years introduced numerous varieties of soybeans for trial at various centres over a wide range of soil and climatic conditions, from as far North as Ord River in the Kimberleys to Albany on the South coast, and the results to date have not been completely successful. The early trials did not meet with much success because of three main factors–1. Inability to obtain good inoculation on plants as a suitable strain of bacteria for inoculation of seeds was not available. 2. Suitable strains and varieties of soybeans were not available as those tried were too long in maturing. 3. Low germination of seed imported for trial. In recent years better results have been obtained" since these problems are been solved. "Of the varieties grown in the South-West, Manchu Yellow, Haberlandt, Arysoy, Easy Cook, Harrow Mammoth Brown, Kenway and Q1463 have all given reasonable results, with yields of up to 30 bushels per acre of seed.

A table (p. 292-93) shows that at present in Western Australia some 51 soybeans varieties from the USA and 18 varieties from Canada are under trial at various centers. For each variety the following information is given: name, average number of days to mature (range: 89-126), yield (6 varieties have yields from 35.0 to 37.44 bushels/acre), and whether or not the seed color is yellow.

Named American soybean varieties under trial: Ito San, Ohio 9100, Manchu, Black Eyebrow, Elton, Aksarben, White Eyebrow, Wilson 89, Ohio 9035 (Hamilton), Ohio 7490, Ohio 9016, Wilson, Ebony, Medium Green, Habaro, Haberlandt, Mikado, Royal, Peking Sel 1-21-8, Peking Sel 1-21-5, Peking Sel 1-21-7, Peking Sel 1-21-3, Sherwood, Virginia, Peking, Shingto, Chestnut, Early Yellow, American Coffee Berry, Early Black, Sable, Wisconsin Black, Medium Early Yellow, Medium Early Brown, Medium Early Black, Ohio 7046, Mongol, Taha, Jet, Haberlandt, Chernie, Nuttall, Ohio 7476, Medium Green, Amherst, Mever [Meyer], Cloud.

Named Canadian soybean varieties under trial: St. Anne's No. 92, Early Brown, Mandarin, Yellow 210, Yellow 17, Chinaton Echo, Italian, O.A.C. No. 211, O.A.C. No. 81, Summerland, Black (China), Early Korean, Green, Manchu, Black Eyebrow, Ito San, Golden, A.K.

Varieties grown experimentally in New Zealand and having an average yield of 23 bushels: Early Yellow, O.A.C., Black Ontario, Manchu (Hudson), Manchu (Ottawa), Cayuga.

Edible varieties of soybeans that are good for use as a green vegetable: Agate, Hahto, Easycook, Rokusen [Rokusun], Funk Delicious, Kura, Aoda, Bansii [Bansei], Shiro, Hokkaido, Chusei, Higan, Janro [Kanro?], Willoni [Willomi], Nanda, Jogun.

Edible varieties of soybeans that are good for use for cooking as dried beans: Easycook, Chusei, Rokusen, Jogun, Hokkaido, Janro [Kanro].

Note: This is the earliest document seen (Oct. 2004) that clearly mentions the soybean variety Chinaton Echo. Address: Agrostologist, Western Australia.

618. Ralston Purina Company. 1946. Annual report. St. Louis 2, Missouri. 12 p.

• ***Summary:*** Although the Ralston Purina Co. was founded in 1898, this is the earliest annual report owned by the company's library (as of Nov. 1998). Contents: Plants of the Ralston Purina Company (shown on a map of the United States and Canada). President's letter to the stockholders, from Donald Danforth, dated 20 Dec. 1946. Ralston Purina Company and domestic subsidiaries consolidated statement of profit and loss: Year ended Sept. 30, 1946. Ralston Purina Company and domestic subsidiaries balance sheet as of Sept. 30, 1946 (2 pages). Notes to financial statements. Accountant's report, by Peat, Marwick, Mitchell & Co., Certified Public Accountants, St. Louis, Missouri, dated 6 Dec. 1946. Products of the Ralston Purina Company: Ralston Cereals (Ralston wheat cereal, Instant Ralston for quick cooking, Shredded Ralston, Bite size ready-to-eat, Ry-Krisp whole rye wafers); Purina Chows–Balanced rations for livestock and poultry (for chickens, turkeys, ducks, dairy cows, calves, beef cattle, sheep, hogs, horses, dogs, rabbits, laboratory and fur animals). A personal message to stockholders from the chairman of the board of directors, by William H. Danforth." Illustrations show of a bag of Purina Chows and a box of Ralston Cereals, each with the checkerboard design.

The company has 29 plants in the USA–stretching from coast to coast, and from Houston, Texas, to Minneapolis [Minnesota]–plus one in Montreal, Canada. In St. Louis is the Purina Research Farm, a plant, and the company's general offices. The lifting of government controls and restrictions provides great challenges and opportunities for the company.

For the fiscal year ended 30 Sept. 1946, net sales were $160.2 million, net income was $161.4 million, and net profit was $4.053 million. Total current assets are $35.5 million.

William Henry Danforth, born in 1870 and now age 76, was the founder of Ralston Purina Co. His plan of four-fold personal development, became the company's famous checkerboard logo. His "Personal Message to Stockholders" states: "While this is a financial statement, it must be evident to all that there is far more to a successful company than merely dollars and cents. Since I have been active in our company from it's founding, I would like the privilege of adding a very personal word to this report.

"Our company stands Foursquare before the world represented by our famous Checker trademark.

"Our people stand Foursquare. They are physically strong, mentally alert, socially adjusted to their fellow men, and grounded in character, honesty and religion.

"Our products stand Foursquare, and return full value to those who purchase them. Our cereals–Ralston, Shredded Ralston and Ry-Krisp–add to the good health of our nation. Farming has been raised to a higher and more profitable level because of results from the use of our Purina Chows and Purina Sanitation Products. You can use and boost our whole line with confidence–and as a stockholder like you should.

"A message like this at the end of a financial statement may be a bit unusual, but I wanted to say to you in a personal way that with superior products, with right living and high ideals, we can have confidence in the days ahead.

"My appreciation goes to our Purina Family, both employees and stockholders, for service well done. Daringly yours, William H. Danforth." Address: St. Louis, Missouri.

619. *Soybean Digest.*1946. Government orders: Canada advances soybean prices. Dec. p. 38.
• ***Summary:*** "The minimum price for No. 1 and No. 2 Canada grade soybeans was advanced from $2.15 to $2.40 per bushel, effective Nov. 4, 1946. Increases on other grades are also 25 cents per bushel with the new prices ranging from $2.12 to $2.37 depending upon the moisture content. These prices apply to soybeans in bulk at Halifax [Nova Scotia], Quebec, Montreal [Quebec], Toronto [Ontario], Winnipeg [Manitoba], Lethbridge [Alberta], or Vancouver [British Columbia]. Deliveries elsewhere are at the maximum prices less the normal cost of transporting soybeans in carload lots from such point to the nearest named city."

620. Cargill, Inc. 1946. The history of Cargill, Incorporated 1865-1945. Minneapolis, Minnesota: Cargill. 118 p. Illust. No index. 18 cm. Saddle stitched.
• ***Summary:*** Contents: Foreword. Part I: History. 1. Beginnings, 1865-1880. 2. Building an integrated unit, 1880-1888. 3. S.D. Cargill and Minneapolis, 1888-1903. 4. Minneapolis progress, 1903-1909. 5. La Crosse and outside investments, 1903-1909. 6. The crisis, 1909-1916. 7. Reorganization, 1916-1922. 8. Expansion eastward, 1922-1926. 9. Progress, 1926-1945. 10. Cargill today.

Part II: Organization. Directors (1890-1945). Biographical sketches of present members of the board of directors of Cargill, Inc.: Austen S. Cargill, Edward J. Grimes, John H. MacMillan, Jr., Cargill MacMillan, Dr. Julius Hendel, Howard I. McMillan, John G. Peterson. Officers (as of 1 Dec. 1945). Divisions, Branches and Plants.

Page 118 states that the company is located at 671 Chamber of Commerce, Minneapolis 15, Minnesota. The same page shows that the company has the following operations in Cedar Rapids, Iowa: A sales office. Two feed & oil plants. Two terminal elevators. An affiliated company is Nutrena Mills, Inc., Kansas City, Kansas.

Photos show: (1) William Wallace Cargill. (2) Typical country elevator. (3) Reproduction of 1886 contract of purchase. (4) James F. Cargill. (5) Early office scene in about 1900 with S.D. Cargill in foreground. (6) Samuel D. Cargill. (7) Cargill's original elevators at the head of the

lakes. (8) F.E. Lindahl. (9) John H. MacMillan. (10) D.D. MacMillan, R.N. Hoople. (11) Elevator "M," Superior, Wisconsin. (12) Elevator "B," Green Bay, Wisconsin. (13) Elevator "K," Superior, Wisconsin. (14) Itasca elevator, Superior, Wisconsin. (15) La Crosse daily chronicle: William W. Cargill. (16) Swift dam–Valier irrigation project, Birch Creek. (17) Spillway–swift dam, Valier, Montana. (18) Birch Creek Diversion dam, Valier, Montana. (19) Lake Frances dam and reservoir, Valier, Montana. (20) P-flume, Valier, Montana. (21) Elevator "T," Minneapolis, Minnesota. (22) Elevator "S," Minneapolis, Minnesota. (23) Subterminal elevator, Sleepy Eye, Minnesota. (24) Superior elevator, Buffalo, New York. (25) Electric elevator, Buffalo, New York. (26) Great Eastern elevator, Buffalo, New York. (27) Cargill elevator, La Crosse, Wisconsin. (28) Elevator "E," Milwaukee, Wisconsin. (29) River house, Memphis, Tennessee. (30) Cargill elevator, Ottawa, Illinois. (31) Belt elevator, E. St. Louis, Illinois. (32) Cargill elevator, Marshall, Minnesota. (33) Cargill elevator at Kansas City. (34) Cargill elevator, Ogdensburg, New York. (35) Cargill Omaha elevator [Nebraska]. (36) C. & N.W. annex, Chicago, Illinois. (37) Lake Steamer loading at Chicago Northwestern elevator. (38) Elevator "R," E. St. Louis, Illinois. (39) Guntersville, Alabama. (40) World's largest grain elevator, Albany, New York. (41) Cargill elevator, Maumee, Ohio. (42) Barge Carswego in Erie Canal lock. (43) Steamer W.D. Rees–Great Lakes freighter. (44) Integrated barge unit. (45) Motorship Victoria. (46) U.S.S. Agawam. (47) Cargill built towboat. (48) Minneapolis seed house. (49) Port Cargill [Savage, Minnesota] on the Minnesota River. (50) Cedar Rapids, Iowa–west side plant–purchased in June 1945 from Honeymead Products Co. (51) Future home of Cargill administrative / executive offices at Lake Minnetonka. (52) Minneapolis feed mill. (53) Soybean plant, Springfield, Illinois. It uses expellers for oil extraction and has a crushing capacity of 4,500 bushels/day of soybeans. The connecting elevator has storage space for about 220,000 bushels, and is equipped for both truck and rail handling.

Note: This is the earliest document seen (Nov. 2005) that mentions "Nutrena" in connection with Cargill. Address: 761 Chamber of Commerce, Minneapolis 15, Minnesota.

621. Holmberg, Sven A. 1946. Från sojaväxtförädlingen vid Fiskeby [Soybean breeding at Fiskeby]. *Kunglinga Lantbruksakademiens Tidskrift (J. of the Royal Swedish Academy of Agriculture)* 85(4):373-84. [Swe; eng]

• ***Summary:*** "The first aim of soya bean breeding at Fiskeby, Sweden, has been to achieve earlier maturity. Varieties which in America and elsewhere are described as 'extra-early,' do not behave as such when grown in the cool, long-day climate of Sweden. The Canadian variety, Manitoba brown, which ripens in 100 days at Ottawa, Ontario, on the 45th latitude, requires 143 days on the 58th latitude at Fiskeby, Sweden. The Sioux variety ripens in 185 days in Virginia, USA (39º), 114-121 days on southern Sachalin [Sakhalin] (47º), and in 136 days at Fiskeby (58º)."

Note: Sakhalin, belongs to the USSR; belonged to Japan from 1905-1945 as Karafuto, but belonged to Russia before that.

"Out of 6,426 attempted hybridizations, only 872 gave progeny. By crossing the short, extra-early varieties found on the islands of Hokkaido [Japan] and Sachalin with the taller, medium-early varieties from Manchuria and Germany, new hybrids were raised. Some of these are decidedly earlier in maturity than either of their parents and are also medium in height. Many of these new hybrids ripen on our latitudes the first days of September showing an advance in earliness of 2-3 weeks as compared with the 'extra-early' varieties cultivated before. New crosses have been made to increase the yield and improve the quality of these hybrids."

Note: This is the earliest document seen (Jan. 2010) that is by or about Sven A. Holmberg, or his work breeding soybeans for northern latitudes and/or cold climates. Address: Sweden.

622. *Gazette (The) (Montreal, Quebec, Canada).*1947. Canadian Breweries Limited and subsidiary companies: Report of the board of directors. Jan. 23. p. 19.

• ***Summary:*** The report, which is printed in the newspaper like an ad, begins: "Toronto, Canada, January 22nd, 1947.

"To the Shareholders: Your Directors present herewith a statement of the affairs and financial position of your Company for the fiscal year ended October 31st, 1946.

"The most important development of the year were the bringing into production of additional capacity at O'Keefe's Victoria Street plant in Toronto and the Carling plant at Waterloo, and the completion of the main plant of Victory Mills Limited, Toronto."

The company's assets and liabilities are given.

623. Hildebrand, A.A.; Koch, L.W. 1947. Soybean diseases in Ontario and effectiveness of seed treatment. *Phytopathology* 37(2):111-24. Feb. [28 ref]

• ***Summary:*** An excellent review of the literature on the effect of treating soybean seed with fungicides. "The number of parasitic diseases now known to have been found in soybean-growing areas variously scattered across the Dominion from Nova Scotia to British Columbia, has reached a total of 13, which figure represents approximately half of the known number of parasitic diseases of the soybean... Eleven of these diseases have been variously reported in the Annual Reports of the Canadian Plant Disease Survey." Most of these diseases are found in southwestern Ontario.

In a 3-year series of experiments, the authors tested the efficacy of Spergon, Arasan, and Fermate on soybeans. Results concerning emergence and yield were inconclusive. Treating poor-quality seed with Spergon increased emergence and yield. Spergon was consistently more effective than Arasan or Fermate in reducing disease or abnormality in early-season stands. Address: Dominion Lab. of Plant Pathology, Harrow, Ontario, Canada.

624. *Soybean Blue Book.*1947-1966. Serial/periodical. Hudson, Iowa: American Soybean Assoc. Annual. Titled Soybean Blue Book from 1947-1966; Soybean Digest Blue Book from 1967-1979; Soya Bluebook from 1980 to present.
• ***Summary:*** A directory and information book for the soybean production and processing industries–but with much greater emphasis on processing and utilization. One of the most valuable sources of worldwide information on soybeans. During the period from 1947 to the 1960s, the Blue Book was usually published in March or April of each year.

In the 1966 Blue Book (p. 28-29) are two full-page tables titled "World Soybean Production." The first gives acreage in 1,000 acres, yield in bushels per acre, and production in 1,000 bushels. The second gives hectarage, yield in kilograms per hectare, and production in 1,000 metric tons. Figures are given for: 1950-54 (average), 1955-59 (average), 1963, 1964, and 1965. Statistics are given for the following countries: North America: Canada, United States. South America: Argentina, Brazil, Colombia, Paraguay. Europe: Italy, Rumania, Yugoslavia, Other Europe (excluding USSR). USSR (in Europe and Asia). Africa: Nigeria, Rhodesia, Tanzania. Asia: Turkey, China (Mainland), Cambodia, China (Taiwan), Indonesia, Japan, Korea (South), Thailand. Estimated world total. Address: Hudson, Iowa.

625. American Soybean Association. 1947. Soybean Blue Book. Hudson, Iowa: American Soybean Assoc. 96 p. Subject index (at front). Index of advertisers (at back). 22 cm.
• ***Summary:*** Contents: Subject index. Many full-page ads. American Soybean Association. National Soybean Processors Association. Soy Flour Association. Terminology. Tables of soybean production, supply, and utilization in the United States. Soybean production in Canada. Production of protein concentrates in USA. Production of soybean oil in USA. Production of soybean meal in the USA. U.S. soy flour production. Prices of U.S. soybeans. Prices of U.S. soybean meal and oil. Official standards for soybeans. Soy flour standards. Processors of soybeans in USA and Canada. Refiners of soybean oil. Manufacturers and handlers of soy foods. Manufacturers of margarine. Manufacturers and handlers of industrial products. Soybean research. Analysts. Equipment manufacturers. Edible soybean growers and distributors. Nutritive value of soybeans. Oil specifications for technical uses. Vitamin content of soy products. Uses of soybeans (diagram). Address: Hudson, Iowa.

626. *Gazette Apicole.*1947. Prime de Mars: Une boîte de "Farine de Soja" pour compléter les apports de pollen [March premium: A box of soy flour to supplement your supply of pollen (Ad)]. 48(484):Inside front cover. March. [Fre]
• ***Summary:*** In Canada, soya flour is currently used by apiculturists (beekeepers). In England it is used not only as a substitute for pollen but to provide nourishment from March to May. In Scotland, Mr. Jeffrée, of the Craibstone College of Agriculture, mixed 1,600 gm of sugar with 400 gm of water, heated it while stirring until boiling, then removed it from the fire and added 500 gm of soya flour. In Germany, during World War II, beekeepers received 250 gm of soya flour per hive as a pollen substitute. In France, some beekeepers have obtained good results using defatted soya flour which contains no more than 5% oil. This product is not sold commercially. We offer it at the good price of 60 French francs to those who want to try it. To use, simply mix the flour with honey to make a solid paste; do not cook. Send your order to *La Gazette Apicole,* Service des Primes, Montfavet (Vaucluse), France.

A comical illustration shows 4 bees stirring a pot.

627. *Soybean Blue Book.*1947. American Soybean Association. p. 13-14.
• ***Summary:*** Organized 1920. Incorporated Feb. 28, 1946. Executive Office, Hudson, Iowa. Officers. Directors. Activities: Fights your legislative battles, holds annual conventions, sponsors yield contests, conducts campaigns (such as inoculation campaigns), answers your questions. Publications: Soybean Digest and Soybean Blue Book. Memberships: Active membership open to individuals for $2.00 a year, or associate memberships open to organizations for $10 a year. Honorary life members.

Local soybean growers associations: (1) Soybean Roundup, Van Wert, Ohio. Eighth annual meeting held Feb. 1947. Lists committee and officers. (2) Remington (Indiana) Soybean Show. Held annually in December. Ninth annual meeting held December 1946. Lists committee. (3) Audrain County Association, Mexico, Missouri. John M. McClure, county agent. (4) North Mississippi County Planning Committee, Blytheville, Arkansas. Keith J. Bilbrey, county agent. (5) Essex County Soybean Association, Essex, Ontario [Canada]. Angus McKenney, agricultural representative Essex County.

628. *Soybean Blue Book.*1947. Soybeans in Canada [acreage, yield and production statistics]. p. 32.

• ***Summary:*** This section consists of 4 tables of Canadian soybean statistics: (1) Acreage, yield, and total production of soybeans in Canada, 1941-1946. Total production of soybeans grew from 216,900 bu in 1941 to 1,072,000 bu in 1946.

(2) Soybean production in Ontario, for the years 1936-40, then each year from 1943 to 1946. For each year is given acres and bushels. Soybean production in Ontario (Canada's southernmost province) grew from an average of 217,844 bu/year during the years 1936-1940 to 1,072,000 bu in 1946.

(3) Soybean production in Manitoba, 1943-1945. Decreased from 35,000 bu in 1943 to 2,000 bu in 1945. (4) Soybean production in British Columbia. 943 acres were planted in 1943. No production figure is given.

629. *Soybean Blue Book.*1947. Processors of soybeans [USA and Canada]. p. 44-64.

• ***Summary:*** Processors are listed by state (alphabetically), and within each state alphabetically by city. For each firm is given the officers, brand names, type of processing equipment, processing capacity, and storage capacity. "Information was obtained through questionnaires sent directly to the processing companies.

Arkansas–Blytheville: Swift & Co. Little Rock: Rose City Cotton Oil Mill. West Memphis: Arkansas Mills.

California–Fresno: Oil Seed Products Co. Oakland: Albers Milling Co.

Illinois–Alhambra: Alhambra Grain & Feed Co. Bloomington: Funk Bros. Seed Co. Cairo: Cairo Meal and Cake Milling Co. Cairo: Swift & Co. Champaign: Swift & Co. Chicago: Allied Mills, Inc. Chicago: Central Soya Co., Inc. Chicago: The Glidden Co. Chicago: Spencer Kellogg & Sons. Chicago: Swift & Co. Decatur: Decatur Soy Products. Decatur: Spencer Kellogg & Sons. Decatur: A.E. Staley Mfg. Co. Galesburg: Galesburg Soy Products Co. Gibson City: McMillen Feed Mills. Kankakee: Bordens Soy Bean Products Co. Mascoutah: Ph.H. Postel Milling Co. Monmouth: Ralph Wells & Co. Nashville: Huegely Elevator Co. Pana: Shellabarger Soybean Mills. Peoria: Allied Mills, Inc. Quincy: Quincy Soybean Products Co. Roanoke: Eureka Milling Co. Rock Falls: Sterling Soybean Co. Springfield: Cargill, Inc. Taylorville: Allied Mills, Inc. Virden: Hulcher Soya Products.

Indiana–Bunker Hill: Ladd Soya Co. Danville: Hendricks County Farm Bureau Co-op. Assn. Decatur: Central Soya Co. Ft. Wayne: Central Soya Co. Frankfort: Swift & Co. Lafayette: Ralston Purina Co. Marion: Hoosier Soybean Mills. Portland: Haynes Soy Products. Rushville: Rush County Farm Bureau Co-op. Assn.

Iowa–Belmond: General Mills, Inc., Chemical Div. Cedar Rapids: Cargill, Inc. Centerville: Pillsbury Mills, Inc. Clinton: Pillsbury Mills, Inc. Des Moines: Spencer Kellogg & Sons, Inc. Des Moines: Swift & Co. Dike: Farmers Cooperative Co. Dubuque: E.E. Frith Co. Eagle Grove: Boone Valley Cooperative Processing Assn. Fairfield: Doughboy Industries. Fort Dodge: Borden's Soybean Processing Co. Fort Dodge: Cargill, Inc. Gladbrook: Central Iowa Bean Mill. Hubbard: Hubbard Soybean Mill, Inc. Iowa Falls: Ralston Purina Co. Manly: North Iowa Cooperative Processing Assn. Marshalltown: Marshall Mills, Inc. Martelle: Farmers Cooperative Elevator. Muscatine: Hawkeye Soy Products. Muscatine: Muscatine Processing Corp. Plainfield: Roach Soybean Mills. Quimby: Simonsen Mill–Rendering Plant. Ralston: Farmers Cooperative Assn. Redfield: Iowa Soya Co. Sac City: Williams Milling Co. Sheldon: Big 4 Cooperative Processing Assn. Sioux City: Sioux Soya Co. Spencer: Cargill, Inc. Washington: Cargill, Inc. Waterloo: Borden's Soy Bean Processing Co. West Bend: West Bend Elevator Co.

Kansas: Coffeeville [Coffeyville]: Consumers Cooperative Assn. Soybean Mill. Emporia: Kansas Soybean Mills, Inc. Girard: Farmers Union Jobbing Assn. Hiawatha: Thomson Soy Mill. Kansas City: Kansas Soya Products Inc. Wichita: Soy-Rich Products, Inc.

Kentucky–Henderson: Ohio Valley Soybean Cooperative. Louisville: Buckeye Cotton Oil. Co. Owensboro: Owensboro Grain Co.

Louisiana–Alexandria: Red River Cotton Oil Co.

Michigan–Concord: Concord Soya Corp. Saline: Soybrands, Inc.

Minnesota–Mankato: Mankato Soybean Products, Inc. Minneapolis: Archer Daniels Midland Co. Minneapolis: Cargill, Inc. Minneapolis: General Mills, Inc. Minneapolis: Spencer Kellogg & Sons, Inc. Preston: Hubbard Milling Co.

Missouri–Kansas City: Ralston Purina Co. Kennett: Hemphill Soy Products Co. Mexico: M.F.A. Cooperative Grain & Feed Co. St. Joseph: Dannen Grain & Milling Co. St. Louis: Blanton Mill, Inc. St. Louis: Ralston Purina Co. Trenton: Central Farm Products Co.

Nebraska–Fremont: Fremont Cake & Meal Co. Lincoln: Gooch Milling & Elevator Co. Omaha: Allied Mills, Inc.

New York–Buffalo: Spencer Kellogg & Sons, Inc. Oswego: Oswego Soy Products Corp.

North Carolina–Clayton: Central Oil & Milling Co. Farmville: Farmville Oil & Fertilizer Co. Hartford: Southern Cotton Oil Co. New Bern: New Bern Oil & Fertilizer Co.

North Dakota–Grand Forks: North Dakota Mill & Elevator.

Ohio–Bellevue–Spencer Kellogg & Sons, Inc. Circleville: John W. Eshelman & Sons. Circleville: Ralston Purina Co. Cortland: Richards Milling Co. Delphos: Delphos Grain & Milling Co. Fostoria: Swift & Co. Lexington: Lexington Soy Products Co. Marion: McMillen Feed Mills, Inc. Ohio City: Holland Pioneer Mills, Inc. Painesville: A.E. Staley Mfg. Co. Springfield: Farm Bureau

Cooperative Assn. Toledo: Toledo Soybean Products Co. Wooster: Soya Processing Co.

Oklahoma–Oklahoma City: Producers Cooperative Oil Mill.

Pennsylvania–Jersey Shore: Penna Soy Bean Co.

South Dakota–Sioux Falls: Western Soybean Mills.

Tennessee–Memphis: Buckeye Cotton Oil Co. Tiptonville: West Tennessee Soya Mill, Inc.

Virginia–Norfolk: Davis Milling Co., Portsmouth: Allied Mills, Inc. Portsmouth: Monsanto Chemical Co.

Wisconsin–Janesville: Janesville Mills, Inc.

Canada–Toronto: Dominion Linseed Oil Co. Toronto: Toronto Elevators Ltd. Toronto: Victory Mills, Ltd.

Note: This is the earliest document seen (Nov. 2007) which appears to show clearly that M.F.A. [MFA; Missouri Farmers Association] is now processing soybeans in Mexico, Missouri.

630. *Soybean Digest.*1947. Sweden hunts for varieties. March. p. 18.
• ***Summary:*** "The first problem of soybean production is Sweden is finding varieties that will mature in that northern latitude.

"Breeding work at Fiskeby in Sweden is covered in the preliminary report of Sven A. Holmberg of Norrkoping in the *Journal of the Royal Swedish Academy of Agriculture.* Middle Sweden is in the same latitude as northern Canada and southern Alaska. Successful soybean growing requires varieties that can be harvested in early September... The Canadian variety, Manitoba Brown, which ripens in 100 days at Ottawa, Ontario on the 45th latitude requires 143 days on the 58th latitude at Fiskeby, Sweden. The Sioux variety ripens in 85 days in Virginia, in 114-121 days on southern Sachalin [Sakhalin] and in 136 days at Fiskeby...

"Mr. Holmberg will be glad to send a copy of his report on the work at Fiskeby, which contains an English summary, to interested readers. Address Sven A. Holmberg, Norrkoping, Sweden."

631. **Product Name:** Cocosoy Toasted Soy Flour [Full Fat, or Low Fat], and Indosoy (Industrial Soy Flour).
**Manufacturer's Name:** Victory Mills, Ltd.
**Manufacturer's Address:** 285 Fleet St. East, Toronto, ONT, Canada.
**Date of Introduction:** 1947. March.
**New Product–Documentation:** Soybean Blue Book. 1947. p. 64, 70. The company also makes Indosoy industrial soy flour.

632. **Product Name:** Soy Nuts.
**Manufacturer's Name:** Victory Mills, Ltd.
**Manufacturer's Address:** 285 Fleet St. East, Toronto, ONT, Canada.
**Date of Introduction:** 1947. March.
**New Product–Documentation:** Soybean Blue Book. 1947. p. 72.

633. Victory Mills, Ltd. 1947. Victory Mills, Limited (Ad). *Soybean Blue Book.* p. 56.
• ***Summary:*** "Vegetable oils and meals. Soybean flours. Brewer's dried yeast. Brewer's dried grains." A photo shows the plant and elevators. Address: 285 Fleet St. East, Toronto.

634. Brillmayer, Franz A. 1947. Die Kultur der Soja in Oesterreich [The cultivation of soybeans in Austria]. Vienna, Austria: Scholle-Verlag. 97 p. Scholle-Buecherei, Bd. 80. With 33 illust. and 16 tables. 22 cm. [Ger]
• ***Summary:*** Contents: Foreword (written in May 1947 at Braunsdorf-Wien). 1. The origin of the soybean and how it spread throughout the world. 2. The history of its introduction into Europe: Into Austria, into Germany, into France, into Poland, Hungary, and the Balkans. 3. Botanical information about the soybean: Its morphology, physiology, Austrian varieties, European varieties, diseases and pests, nodule bacteria and hormones. 4. Breeding, the goals of breeding, and conduct of investigations (Versuchswesen). 5. Climate and suitable varieties. 6. Culture: Soil, preceding and subsequent crops in rotations, preparation of the soil, fertilizing the soil, time of seeding, inoculation, seeds, scarification *(Beizung)* of the seeds [to "wound" or scratch the seed coat so that the seeds imbibe water and thus germinate better], plant spacing and density of planting, amount of seeds and depth of planting, damage done by wild animals (game), care of the crop, harvest, threshing, storage.

The many interesting photos at the back of the book include: 3. The first soya field in 1924 growing the variety Platter SS 14. 5 and 6. A breeding plot in southern France (Lamagistere). In April 1937 the best Austrian soybean varieties were planted at St. Sylvain d'Anjou. 7. Threshing of Platter gelbe Riesen varieties harvested in Casablanca, Morocco. 8. A field of Austrian soybean varieties in Marrakech (Marakesh), French Morocco. 10. Marcel Blanchard with a breeding plot of Austrian soybeans at Agen (Garonne), France. 11. Soybean nodules inoculated with Radicin. 11-12. The Radicin factory. 26. The soybean breeding plots at Platt. Address: Braunsdorf, Post Roseldorf, Niederoesterreich (Lower Austria), Austria.

635. Brillmayer, Franz A. 1947. Geschichte der Einfuehrung der Soja in Oesterreich [History of the introduction of the soybean to Austria. I. (Document part)]. In: F.A. Brillmayer. 1947. Die Kultur der Soja in Oesterreich. Vienna: Scholle-Verlag. 97 p. See p. 11-14. [Ger]
• ***Summary:*** In the section titled "History of the introduction of soya to Europe," page 11 states: "Starting in 1920 again, for the second time, Austria promoted the

production and utilization of soybeans, and with this the impulse for a new "soya wave," which now went all over Europe, was unleashed. Here in Vienna a soya industry also began with the production of Edelsoja. Assistant Professor Kupelwieser used it to demonstrate the outstanding significance of soya as a protein source, going against the then current opinion that soya was primarily an oilseed. From my soybean breeding location at Platt in Lower Austria, Austrian cultivars spread all over Europe and even overseas.

"Why should it not be widely known that valuable pioneering work was performed in Austria? The line of soybeans bred in Platt went to Poland, the Balkans, to Hungary, Belgium, Holland, and Greece, to Turkey, to Persia, Canada, England, Germany, Dutch Guiana [later renamed Suriname], the Indian Peninsula [Vorderindien, incl. India, Sri Lanka, and parts of Pakistan and Burma], China, Java, Tanganyika, to French Morocco, and Bessarabia [now part of the Moldavian S.S.R. in the USSR]. It was not only new breeds of soybeans that spread out from Austria but a rekindling of the "soya idea" that had its origin here. This led to a change of opinion and the soybean came to be seen as a world power factor *(Weltmachtfaktor),* as is already well known today.

"According to Dr. [E.C.] Winkler's patented process for debittering soya, a very modern factory was erected in Vienna XX. In it, a part of the oil was expressed, leaving a meal with only half its original fat content. Dr. Winkler achieved, through prior debittering of the soybeans, an excellent food and salad oil that did not need to be further refined. Also, the production of unrefined salad oil from Edelsoja originated in Austria.

"History of the introduction of soya to Austria (p. 11): On the occasion of the Vienna World Exhibition of 1873, Japan exhibited soybeans and awakened a great interest for this Asian plant throughout Central Europe. This was mainly because of the fact that in the Exhibition attention was called to the value of the soybean. The Viennese university professor Friedrich Haberlandt took the matter into his own hands. Through the agency of the imperial embassy / legation he had the Ministry of Agriculture acquire 20 soybean samples from Japan and China. The tests were done in the warmer provinces of the Monarchy. There were 148 agronomic trials introduced in Hungary, Dalmatia [a former region on the Adriatic coast of what is now Croatia; formerly an Austrian crownland], Kärnten [Carinthia, today a state in southern Austria bordering on Italy and Yugoslavia], Steiermark [Styria, a state in the mountainous part of central and southeast Austria], Istrien [Istria, in Slovenia since June 1991], and Mähren [Moravia, a region in central Czechoslovakia]. In 1877 Haberlandt had already gathered so much experience that exact guidance for cultivating soybeans could be given. At this time the first composition analyses were undertaken, so exact knowledge of the value of soybean seeds was obtained. Likewise, through Steuf and Wolker, experience was gained in pressing oil from the seeds, and selections were undertaken in the Botanical Garden at Vienna. The highest yielding types were called "Haberlandt" and these first appeared in the seed catalog of the great seed company Vilmorin Andrieux & Co. in 1880.

"Haberlandt pointed out the value of the soybean as food and recommended a diet of soybeans and potatoes, which contained all nutrients necessary for human life. It was also recommended that the soybean be incorporated into the commissary provisions of the army, and in this process that peas in the popular pea sausage 'Erbswurst' be partially replaced by soybeans.

"At that time, the soybean could not stand on its own. It remained strong for a long time in the peasant agriculture of Krain [Carniola; now in Slovenia] and Istrien, and served as a 'coffee bean' *(Kaffeebohne)* in the preparation of a breakfast drink. There were two conditions which stood in the way of the spread of soybeans. First, the soybean is a foreign food to us. When cooked, it remains hard and has an after-taste, an off flavor that is bitter. The very thin layer under the seed coat of the bean is the source of this after-taste. In addition, it was said that Asian soyfoods have no taste. What is more, there was plenty of food in the Monarchy, so there was no need for a new, foreign food.

"The soybean completely disappeared from memory in Austria. It was only kept in a few botanical gardens as a curiosity.

"In 1920 I began breeding soybean lines with the goal of getting ones that would ripen in our climate and give reasonable yields. Conditions for soybean culture became ripe after World War I due to the general lack of food. My starting material was a matchbox full of soybeans that a prisoner of war had brought with him from Siberia. After a long delay, the solution to the soybean problem was begun in Platt in lower Austria, near Zellerndorf in the district of Hollabrun. Some of the seeds ripened and in the next year those that ripened earliest were selected. In 1924 I was able to announce to Dr. Markus Brandl (the top agricultural official in the area) that I had a field of soybeans that matured in mid-September. Immediately Dr. Fritz Drahorad was sent to Platt to inspect and report on the soybean plant. Drahorad was the current top ranking agronomic official in Vienna in charge of plant cultivation and seed testing *(Oberkommissär der Bundesanstalt für Pflanzenbau und Samenprüfung)* and the assistant to Privy Councillor *(Hofrat)* Professor Dr. Tschermak von Seysenegg, who had been involved with soya at Royal College of Agriculture *(Hochschule für Bodenkultur)* in Vienna. He wrote a confirming report, that a good yielding, early maturing variety was now at hand. This first domestic variety was small seeded and black. It was called Platter SS (Black Seeded) 14.

"Using only newspaper articles and a small price list, I propagated soybean culture. I pointed out its significance as human and animal food, established connections with central authorities in China, and exchanged experiences and breeding material with research stations in Manchuria. The Chinese Eastern Railway soybean station in Harbin, which then employed a staff of 20 scientists, published annually a hefty volume with research results dealing with all questions of culture, breeding and utilization. In this way, Austria received new breeding material from Manchuria– over 80 soybean varieties. But in Platt they failed to perform up to our expectations because of the longer vegetation period.

"Meanwhile, from the small-seeded SS 14 a very large seeded strain was selected. In the price list of 1929, eight lines appeared, with maturity times ranging from 114 to 128 days. One thousand seeds weighed 158 to 170 gm. Yields steadily improved throughout 1929. In the same year, the new varieties of Platt Yellow and Platt Yellow Giant were made available in small quantities for research. A table (p. 14) shows that 100-gm packets of mixed types were sold, including many black types and Professor Früwirth's Black Eyebrow, all prefaced by the word 'Platter.'

Note: This is the 2nd earliest document seen concerning the cultivation of soybeans in Persia [renamed Iran in 1935]. Address: Braunsdorf–Vienna, Austria.

636. Hildebrand, A.A.; Koch, L.W. 1947. Observations on bud blight of soybeans in Ontario. *Scientific Agriculture (Ottawa)* 27(7):314-21. July. [15 ref]

• ***Summary:*** "As the acreage of soybeans in southwestern Ontario has increased rapidly during the past few years, so also has the number of diseases that affect this crop. One of the most potentially dangerous of these is bud blight or, as it has also been designated, top necrosis or streak. The first occurrence of this disease in the field was noted in 1941, and the following year it was found in Iowa and Indiana... Bud blight was first detected in Ontario early in July 1944 in the Harrow laboratory soybean experimental plots." Bud blight is caused by the tobacco ring-spot virus. The symptoms of the disease are described. Little evidence was obtained on the seed-borne nature of the virus. Address: Dominion Lab. of Plant Pathology, Harrow, Ontario.

637. Lehberg, F.H. 1947. Production and processing of soybeans in Canada. *Soybean Digest.* Sept. p. 31-32. [20 ref]

• ***Summary:*** Contents: Introduction. Most oil is imported. Crushing industry. Most soybeans are grown in Ontario. Uses are much like U.S. Mixed feed industry.

"Victory Mills Ltd., under the direction of its president, H.D. Egly who brought to us in Canada many years of invaluable experience in soybean production in the United States, undertook a most extensive educational and promotional program with the result that in 1947, we will produce more soybeans than heretofore in our history, or an estimated 1,134,000 bushels." Address: Victory Mills, Ltd., Toronto, ONT, Canada.

638. Peck, R.H. 1947. Ontario growers organize. *Soybean Digest.* Nov. p. 8.

• ***Summary:*** "The Ontario Soybean Growers Association was organized at a meeting at Leamington, Ontario, November 8, 1946. Committees set up for the purpose from five counties took part in the organization.

"Action had been initiated earlier at a meeting of Essex County soybean growers interested in an organization to look after their interests. There, two committees of five men each from Essex County and Pelee Island were set up to contact soybean growers in other southwestern Ontario counties and urge them to select committees to meet with the Essex County group.

"The Association represents growers of about 60,000 acres of soybeans with an estimated yield of 1,134,000 bushels in 1947. Finances are provided by voluntary membership fees and some help from local elevators.

"John Wilcox, Woodslee, Essex County, was elected chairman of the group; and Angus McKenny, Essex County agricultural representative, secretary."

"The usefulness of the organization was shown early. A delegation persuaded the Federal government at Ottawa to raise the ceiling price of soybeans from $2.15 to $2.40 to bring it more nearly into line with the ceiling on corn. (Ceiling was removed September 15 of this year.) Proceedings also were started to form an Ontario soybean growers marketing scheme under the Farm Products Marketing Act of Ontario. Under the scheme, which is subject to approval by a vote of the majority of the growers of soybeans, a growers' negotiating committee would meet with a dealers' and processors' negotiating committee to decide on the price, grade, handling charges, etc., of the crop."

"The Ontario soybean acreage will likely be increased as earlier-maturing varieties are developed for counties further north, and when more southwestern Ontario farmers recognize their value in the crop rotation.

"The future plan of the Association is to do everything possible to promote the soybean industry."

Note 1. This was Canada's first trade association for soybean growers, and the forerunner of the Ontario Soya-Bean Growers' Marketing Scheme (soon renamed the Ontario Soya-Bean Growers' Marketing Board), established in 1949 under the "Farm Products Marketing Act" of Ontario.

Note 2. This is the earliest document seen (Jan. 2010) concerning Ontario Soybean Growers or its ancestors. Address: River Canard, Ontario.

639. *British Columbia, Department of Agriculture, Annual Report.*1947. Soybean trials. 42:1-189. *
• ***Summary:*** The Field Crops Branch conducted these soybean trials. The soybean variety Earlyana, which as introduced recently, was tested on plots on Vancouver Island and the Lower Mainland, but it is not early enough for local conditions. Some seed has been kept for earlier planting and another test in 1948. Address: Dep. of Agriculture, Victoria, Province of British Columbia.

640. **Product Name:** Soybean Oil, and Soybean Oil Meal.
**Manufacturer's Name:** Dominion Linseed Oil Co.
**Manufacturer's Address:** 587 Fleet St., Toronto, ONT, Canada.
**Date of Introduction:** 1947.
**Ingredients:** Soybeans.
**New Product–Documentation:** Soybean Blue Book. 1947. p. 64.

641. **Product Name:** Clearate Lecithin.
**Manufacturer's Name:** W.A. Cleary Corp.
**Manufacturer's Address:** New Brunswick, New Jersey.
**Date of Introduction:** 1947.
**New Product–Documentation:** Ad in Soybean Blue Book. 1947. p. 71. "Contact W.A. Cleary Corporation. The world's largest independent manufacturer of lecithin for profitable disposition of your wet gums and other lecithin-containing raw materials. Plants in Chicago, Illinois; New Brunswick, New Jersey; and Belleville, Ontario, Canada."

642. Food and Agricultural Organization of the United Nations. 1947. Soybeans: Area, yield, and production. *Yearbook of Food and Agricultural Statistics.* See p. 101-02.
• ***Summary:*** Under soybeans, gives region/continent and country, then statistics for soybean area, yield, and production for each soybean producing country. Statistics show that the following countries produced the following amounts of soybeans (measured in 1,000 metric tons) during the 1934-38 period (the earliest period given).

Europe: Austria 0.2. Bulgaria 11.6. Czechoslovakia 0.9. Hungary 0 (but 6.2 in 1940 and 1.3 in 1945). Italy less than 0.5 (but 0.01 in 1940 and 0.9 in 1945). Poland 0.5. Rumania [Romania] 11.7, Yugoslavia 1.5. Europe total: Former boundaries 550, present boundaries 260. USSR: Former boundaries 68.1, present boundaries 97.1.

America: Canada 5.5. United States 1,164.0. Total 1,170.0

Asia: China: China Proper 6,092.7, Formosa (Taiwan) 4.2, Kwantung 20.2, Manchuria 3,851.0. Indochina: Cambodia 0.4 (in 1937). Japan 325.1. Korea 518.6. Netherlands Indies [Indonesia]: Bali and Lombok 9.0, Java and Madura 236.4. Asia total: 10.60. Africa: Southern Rhodesia less than 0.5 (but 0.3 in 1942 and 0.2 in 1945).

World totals: Excluding USSR–Former boundaries 11.829. Excluding USSR–Present boundaries 11.800. Including USSR: 11.9000.

643. Harly: New Canadian domestic soybean variety. 1947. Seed color: Yellow.
• ***Summary:*** Sources: Owen, C.W. 1949. "New Canadian variety." *Soybean Digest.* June. p. 8. The new soybean variety, Harly, was bred at the Dominion Experimental Station, Harrow [Ontario], and accepted for registration by the Canadian Seed Growers' Association. It originated from a selected segregate in a cross between Mandarin and A.K. (Harrow).

USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 11. "Harly.–Selection from a cross between the Mandarin and A.K. varieties by the Dominion Experiment Farm, Harrow, Ontario, Canada. Released in 1947. Pubescence, gray; flowers, purple; shattering, little; seeds, yellow with yellow hilum, about 2,600 to the pound; cotyledons, yellow; oil, 18.9 percent; protein, 38.9 percent; iodine number, 130. Maturity, group I."

644. *Windsor Daily Star (Essex County, Ontario, Canada).*1948. Provides nourishing meals costing three cents each: Versatile source of shortening and industrial oils makes good Ontario cash crop. Jan. 20. p. 5-6.
• ***Summary:*** Robert H. Peck of River Canard, Ontario, has grown soy beans for 22 of his 33 years. "It is his confident faith that the soy bean will have more to do with Canada's future health and wealth than most people suspect... He raised his first soy beans for a school fair in 1925. Since then he has planted more and more each year until in the middle 1930s, he began devoting a considerable acreage to registered seed production. Last fall his beans took first prize at the Royal Winter Fair at Toronto but, to his chagrin only placed second in the International Grain and Feed Show at Chicago [Illinois].

In October 1947 "he was made a director of the American Soy Bean Association, becoming the first Canadian to be chosen for the governing body of that organization since, in 1929, G.I. Christie of Guelph served as president.

"In 1947 Bob Peck raised about 800 bushels of high-grade seed soy beans on 50 of his 180 acres of farmland at River Canard, seven miles south of Windsor, as well as running a test plot for the Harrow Experimental Farm, where new varieties are developed... In all Canada nearly 200,000 acres of farmland were devoted to soybeans last year, as compared with 10,000 acres in 1941." About 88% of Canadian soy beans are produced in Western Ontario, chiefly in Essex and Kent Counties. Some are grown in

Middlesex, Elgin, and Lambton Counties. Soybean oil is now widely used in making shortening, while the meal is used to feed dairy cattle and poultry. Soybean oil can also be used to make more than 4,000 industrial products, such as paints, plastics, and linoleums. In the USA it serves as a basic ingredient in oleomargarine. "New uses are constantly being sought by such firms as Victory Mills, Limited, which recently announced the establishment of a $300,000 research project directed by Dr. W.D. McFarland, former head of the chemistry department of MacDonald [sic, Macdonald] College in Quebec."

A large photo shows Mr. Robert H. Peck with sack of soybean seeds. Also discusses the work of Meals for Millions in using soybeans to develop a 3-cent meal to feed the hungry in Europe.

645. *Soybean Digest.*1948. Grits and flakes... from the world of soy: Milquo Ltd. is now Vi-Tone. Jan. p. 34.
• ***Summary:*** "Milquo Limited has changed its firm name to Vi-Tone Products Limited, 198 Gage Ave. S., Hamilton, Ontario. Ray H. Bissell is president."

646. *Windsor Daily Star (Essex County, Ontario, Canada).*1948. Yields best in soy beans: Essex, Kent growers winners of contest. Feb. 28. p. 5, col. 8.
• ***Summary:*** "Top places in the Ontario Crop Improvement Association's high yield soybean contest were won by Essex and Kent County men." The top four places were named. Fred Newcombe, of Blenheim, placed first with a yield score of 100 and yield per acre count of 40.56 bushels; he won $100. William Pajot, of River Canard, was second with 36.18 bu/acre, and a prize of $60.

The contest was carried out in co-operation with Victory Mills and Toronto Elevators Limited and was designed to expand soybean acreage in Ontario, lead to another good cash crop with high yields, and "further the production of an edible vegetable oil from a home-produced crop."

Note: This is the earliest article seen (Aug. 2002) that mentions Toronto Elevators Ltd. in connection with soybeans.

647. Roberts, I.M. 1948. Organize Ontario soybean committee. *Soybean Digest.* Feb. p. 16.
• ***Summary:*** "In the fall of 1946, Dr. G.P. McRostie, field husbandry department, Ontario Agricultural College, called a meeting of a group which included plant breeders who were working with soybeans at the different Dominion and provincial experimental stations and processor representatives. He believed that the interests of those specially concerned with soybean improvement in Ontario would best be served by forming an Ontario Soybean Committee." The Committee would serve "the following purposes: (1) a means of planned attack on soybean improvement; (2) co-ordination of work between experimental stations; (3) a clearing house for information; (4) a basis for uniform recommendation.

"On December 10, 1947, the same group and, in addition, representatives of the soybean growers, met in Chatham with the sanction obtained for an Ontario Soybean Committee. Informal reports were heard from Dr. F. Dimmock, Ottawa; I.M. Roberts, Guelph; J.J. Nelson, Ridgetown, and C.W. Owen, Harrow, on the research and breeding programs being carried out at their respective stations." Address: Research Fellow, Field Husbandry Dep., Ontario Agricultural College, Guelph, Ontario.

648. American Soybean Association. 1948. Soybean Blue Book. Hudson, Iowa: American Soybean Assoc. 112 p. Advertisers' index. 22 cm.
• ***Summary:*** A table (p. 48) shows "Canadian consumption of soybean oil" (1938, 1944, 1945) for each of eight different uses. In 1938 some 2.4 million lb were used including 1.6 million lb in soaps and washing compounds. In 1944 some 11.2 million lb were used in slaughtering and meat packing. Address: Hudson, Iowa.

649. Dimmock, F. 1948. Soybean breeding at Ottawa. *Soybean Digest.* March. p. 18.
• ***Summary:*** "Breeding work with soybeans was begun at the Central Experimental Farm, Ottawa, Ontario, in 1928. The main objectives of the program were to develop early maturing high yielding varieties of desirable plant type, suitable for production in eastern Ontario and southern Quebec and other short seasoned areas throughout Canada... The earliest variety secured was Manitoba Brown, a selection made at the Manitoba Agricultural College, from Ogemaw. Others included Wisconsin Black, Mandarin, Ito San, Manchu, together with collections from the United States Department of Agriculture, the Royal Botanic Gardens, London, England, and several private sources."

"By 1934 sufficient progress had been made to request a license for the sale of a selection from Mandarin, which was named Mandarin (Ottawa). It was accepted for registration by the Canadian Seed Growers Association in the same year. Mandarin (Ottawa) remains the most popular variety in eastern and central Ontario and is still the standard used by many growers to judge the merits and value of more recent varieties.

"As the years passed additional new varieties have been developed and made available to growers. In 1937 the variety Kabott was released. It was 10 days earlier in maturity than Mandarin (Ottawa) and originated from a mixed lot of seed obtained in 1933 through R. R. Kabalkin, London, England and collected in the district of Ninguta, Manchuria. In 1939, seed of Pagoda was made available to growers. This variety ripens about 10 days earlier than Kabott and represents one of the progenies from a cross

made in 1930 between Manitoba Brown and a selection from Mandarin. Pagoda combines the early maturity of Manitoba Brown with the greater growth, increased yield, absence of shattering and yellow seed of Mandarin."

"More recently a new variety, Capital, has been added to the group. Capital originated from a cross between strain 171 x A.K. (Harrow) made in 1935. Strain 171 was a selection obtained from a mixed lot of seed received by the Division of Forage Plants, Ottawa, in 1931 from J.L. North, Royal Botanic Garden, London, England and was collected in the vicinity of Sochentze, east of Harbin, Manchuria." Address: Ottawa, ONT, Canada.

650. Victory Mills, Limited. 1948. Vegetable oils, oilmeals, soybean flours, malt sprouts, brewer's-malt, dried yeast, dried grains (Ad). *Soybean Blue Book* p. 75.


• ***Summary:*** This ½-page ad shows a large illustration (aerial view) of the Victory Mills plant with a tanker nearby on the water. Address: Head office and plant: 285 Fleet St. East, Toronto; Montreal office: Big Royal Bank Bldg., Montreal.

651. Morse, W.J. comp. 1948. Soybean varietal names used to date. Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26.
• ***Summary:*** This is a 9-page two-column table. Column 1 is "Variety name." Column 2 is "Source." P.I. refers to the Plant Introduction number. Acadian–Louisiana Experiment Station 40-293. Acme–P.I. 14954. Adams–A5-2683 (A3-176). Agate–P.I. 81037. A.K.–Manchuria 1912. A.K. (Harrow)–Dominion Exp. Station, Canada. Akasoya–Japanese variety (Indiana). Aksarben–P.I. 36576. Allison Black–D.T. Allison, Tennessee. American Oil King–Same as Midwest. Amherst–P.I. 17275. Anwei–La Choy Co. (Ohio). Aoda–P.I. 81043. Arikara–O. Will Co. (North Dakota). Arisoy–P.I. 86736. Arkan–P.I. 87050. Arksoy–P.I. 37335. Arksoy 2913–Arkansas Exp. Station (Marianna). Arlington–P.I. 22899. Armredo–Arizona Station selection. Auburn–P.I. 21079A. Austin–P.I. 17263. Austrian Green–Same as Tokyo. Avoyelles–Avoyelles Parish, Louisiana, selection. Baird–P.I. 22333. Bakaziro–Same as Amherst. Banner–Same as Midwest. Bansei–P.I. 81031. Barchet–P.I. 23232. Bavender Special–Bavender selection (Iowa). Bell–Same as Midwest. Best Green–Same as Hope. Best White–Same as Amherst. Biloxi–P.I. 23211. Biltan–Otootan selection (South Africa). Black–Same as Buckshot. Black Beauty–Same as Ebony. Black Champion–Same as Peking. Black Eyebrow–P.I. 30744. Blackhawk–A6K-937 (A3K-884). Black Sable–Same as Peking. Boone–P.I. 54563-3. Bopp–Same as Chernie. Brindle–P.I. 20407. Brooks–P.I. 16789. Brown–Same as Mammoth Brown. Brown Otootan–Same as Tanner. Brownie–P.I. 17256.

Buckeye Cross (BX)–Same as Mt. Carmel. Buckshot–P.I. 17251. Burnette–Farmville, North Carolina, selection. Buster Brown–Same as Trenton. Butterball–P.I. 17273. Capital–Central Exp. Farm (Canada). Cayuga–P.I. 65393. Chame–P.I. 80473. Chang–P.I. 54610-2. Charlee–P.I. 71663. Chernie–P.I. 18227. Cherokee–P.I. 93057. Chestnut–P.I. 20405B. Chief–Illinois Exp. selection. Chinaton Echo–Harrow, Canada. Chiquita–P.I. 27707. Chuku–La Choy Co. Chusei–P.I. 80472. Cibao–Salvador variety. Clay–Same as Midwest. Claybank–Same as Midwest. Clemson–P.I. 71659. Cloud–P.I. 16790. Cluster Bean–Same as Midwest. C.N.S.–J.E. Wannamaker (South Carolina; Note 1. This is the earliest document seen {Dec. 2004} concerning John E. Wannamaker). Coker's Black Beauty–Same as Oloxi. Coker's 31-15–Same as Pee Dee. Columbia–P.I. 22897. Columbian–Same as 22897. Creole–P.I. 71614. Delnoshat–Delta Station selection 6679. Delredo–Mississippi selection. Delsoy–P.I. 85355. Delsta–Delta Station #6677. DeSoto–Reported by Ohio grower. Dixie–P.I. 37330. Dortchsoy #2–Dortch Co., Arkansas. Dortchsoy #6–Dortch Co., Arkansas. Dortchsoy #7–Dortch Co., Arkansas. Doxie–Georgia Exp. Station. Duggar–P.I. 17268C. Dunfield–P.I. 36846. Dunland–Ohio report (Dunfield?). Dwarf Brown–Same as Ogemaw. Dwarf Early Yellow–Same as Ito San. Dwarf Green–Same as Guelph. Earlyana–Indiana Exp. Station C-28. Early–Same as Ito San. Early Black–Same as Buckshot. Early Brown–P.I. 25130 & 25161. Early Green–Same as Medium Green. Early Indiana Laredo–Same as Norredo. Early Japan–Same as Butterball. Early Korean–No source given.

Early Laredo–Same as Norredo. Early Mammoth Black–Same as Buckshot. Early Mandarin–Same as Mandarin. Early Virginia Brown–Same as Virginia. Early White–Same as Ito San. Early White Eyebrow–Source unknown. Early Wilson–Same as Wilson. Early Wilson Black–Same as Wilson. Early Wisconsin Black–Same as Wisconsin Black. Early Woods Yellow–No source given.

Early Yellow–Same as Ito San. Easycook–P.I. 34702. Ebony–P.I. 17254. Eda–P.I. 17257. Eda Mame–Ito San and Eda. Edgecombe–R.P. Cocke, Williamsburg, Virginia. Edna–P.I. 17252C. Edsoy–Changed to Delsoy. Edward–P.I. 14953. Elton–P.I. 20406. Emperor–P.I. 97155. Essex–Same as Peking. Etampes–Same as Ito San. Etum–P.I. 86100. Extra Early Black–Same as Buckshot. Fairchild–P.I. 19184. Farnham–P.I. 22312. Feed All–A.M. Johnson (North Carolina). Feeser's Prolific–Same as Midwest. Flambeau–Wisconsin selection 839-14. Flat Black–Same as Flat King. Flat King–P.I. 17252. Flava–P.I. 16789A. Foster's Prolific–Same as Midwest. Fungi–P.I. 81029. Funk Delicious–Funk Brothers (Illinois). Funman–Funk Brothers (Illinois). Gala–Georgia Exp. Station. Galaway–Same as Midwest. Gatan–Georgia Exp. Station. Gem–P.B. Hutchins (Missouri). George Washington–Virginia selection. Georgian–P.I. 71583. German Coffee Berry–Same as Ito San. Giant Brown–Same as Mammoth Brown. Giant Green–Illinois Exp. Station. Giant Yellow–P.I. 22415. Gibson–Indiana Exp. Station. Goku–P.I. 80480. Golden–Canada Exp. Station, Harrow. Goldsoy–Ontario Station, Canada. Gosha–Same as Manhattan. Goshen Prolific–Farmer selection (North Carolina).

Granger–Ohio selection 31-4. Green–Same as Guelph. Green and Black–P.I. 84784. Greenfield–Probably Illini. Green Samarow–Same as Samarow. Guelph–P.I. 17261. Habaro–P.I. 20405. Haberlandt–P.I. 17271. Hahto–P.I. 40118. Hakote–P.I. 81039. Hamilton–Ohio-9035. Hankow–P.I. 6559. Hansen–P.I. 20409. Harbinsoy–P.I. 54606-3. Harman–Canada Exp. Station. Hawkeye–Iowa A45-251. Hay Boy–Farmer selection (North Carolina). Hayseed–P.I. 71525. Herman–North Carolina selection. Hidatsa–P.I. 81038. Higan–P.I. 80475. Hiro–P.I. 86038. Hokkaido–P.I. 85666. Hollybrook–Wood Seed Co. (Virginia). Hollybrook Early–Same as Midwest. Hongkong–P.I. 22406. Hoosier–P.I. 30746. Hope–P.I. 17267. Hudson Manchu–T.B. Macauley [sic, Macaulay] (Canada). Hurrelbrink–Farmer selection (Illinois). Ignotum–E.E. Evans (Michigan). Illington–Source unknown. Illini–Illinois Exp. selection. Illinois 13-19–Same as Ilsoy. Illinois Champion–Same as Midwest. Ilsoy–Same as Merko. Imperial–P.I. 81780. Indiana Hollybrook–Same as Midwest. Indiana Meadow–Ohio Report. Italian–Canada Exp. Station. Ita Mame–Same as Tokyo. Ito San–P.I. 17268. Jackson–P.I. 82581. Japanese #15–Same as Kingston. Japan Pea–Same as Ito San. Jefferson–P.I. 82202. Jet–P.I. 17861. Jogun–P.I. 87615. Johnsoy–A.E. Johnson (North Carolina). Kabott–Canada Exp. Station. Kagon–Source unknown. Kanro–P.I. 84928. Kanum–P.I. 84668-1.

Kentucky A–Kentucky Exp. Station selection. Kia–Illinois Exp. Station selection. Kingston–P.I. 17255. Kingwa–West Virginia Exp. Station selection. Kirin–La Choy Co. Kungchuling–Manchuria selection. Kura–P.I. 81042. Laredo–P.I. 40658. Large Black–Same as Buckshot. Large Brown–Same as Mammoth Brown. Large Yellow–Same as Mammoth Yellow. Late–Same as Mammoth Yellow. Late Ita Mame–Same as Tokyo. Late Yellow–Same as Mammoth Yellow. Lexington–P.I. 17862E. Lincoln–Illinois Exp. Station selection. Little Wonder–Farmer selection (Missouri). Looney #2–Farmer selection (Tennessee). Lowrie–P.I. 22898A. Loxitan–Delta Exp. Station selection. Ludeke–Farmer selection (North Carolina). LZ–Louisiana Exp. Station selection.

Note 2. This is the earliest document seen (Sept. 2004) that mentions the soybean varieties Brown Otootan, Early Mammoth Black, or Hidatsa.

Note 3. This is the earliest document seen (Sept. 2004) which states that Black Champion is the same as Peking, or that Best Green is the same as Hope, or that Brown Otootan is the same as Tanner, or that Early Mammoth Black is the same as Buckshot, or that Hollybrook Early is the same as Midwest. Continued. Address: USDA, Bureau of Plant Industry, Soils & Agricultural Engineering, Div. of Forage Crops & Diseases [Beltsville, Maryland].

652. Morse, W.J. comp. 1948. Soybean varietal names used to date (Continued–Document part 2). Washington, DC: Appendix to the mimeographed report of the Fourth Work Planning Conference of the North Central States Collaborators of the U.S. Regional Soybean Laboratory, Urbana, Illinois. RSLM 148. 9 p. May 26.

• ***Summary:*** Continued from page 5: This is a 9-page two-column table. Column 1 is "Variety name." Column 2 is "Source." P.I. refers to the Plant Introduction number. Macoupin–Farmer selection (Illinois). Magnolia–P.I. 85537. Mamloxi–Delta Exp. Station selection. Mammoth–Same as Mammoth Yellow. Mammoth Black–Same as Tarheel Black. Mammoth Brown–Source unknown. Mammoth Yellow–Source unknown. Mamotan–Delta Exp. Station selection. Mamredo–Delta Exp. Station selection. Manchu–P.I. 30593. Manchu #3–Wisconsin Exp. Station selection. Manchu #606–Wisconsin Exp. Station selection. Manchukota–South Dakota Exp. Station selection. Manchuria–Same as Pinpu. Manchuria 13-177–No source given. Mandarin–P.I. 36653. Mandarin #507–Wisconsin Exp. Station selection. Mandarin (Ottawa)–Canada Station selection. Mandell–Indiana Exp. Station selection. Mandriff–Ohio Report (Mandarin?). Manhattan–P.I. 17277. Manitoba Brown–Canada Station selection. Mansfield–Ohio Report. Mansoy–Manchu selection. Marlow–Ohio Report. Matthews–Farmer selection (Georgia). McClave–Same as Midwest. Medium Black–Same as Buckshot. Medium Early Black–Same as Buckshot. Medium Early Brown–Same as Early Brown. Medium Early Green–Same as Guelph.

Medium Early Yellow–Same as Ito San. Medium Green–Same as Guelph. Medium Yellow–Same as Midwest. Mendota–Wisconsin Exp. Station selection. Meridian–Ohio Report. Merko–P.I. 20412. Meyer–P.I. 17852. Miami–Ohio

Report. Michigan Green–Same as Guelph. Midland–Ohio Report. Midunk–Funk Brothers (Illinois). Midwest–P.I. 17269. Midwest Free–Same as Midwest. Mikado–Farmer selection (Indiana). Mingo–Ohio Exp. Station selection. Minnsoya–Same as Minsoy. Minong–Probably Minsoy. Minsoy–P.I. 27890. Missoy–P.I. 71664. Misstucky–Farmer selection (Kentucky). Monetta–P.I. 71608. Mongol–Same as Midwest. Monroe–H5 (Ohio). Montreal Manchu–T.B. Macauley [sic, Macaulay] (Canada). Morgan–P.I. 22633. Morse–P.I. 19186. Mount Carmel–P.I. 70218-2. Mukden–P.I. 50523Q. Mukden #4–Wisconsin Exp. Station selection. Nanda–P.I. 95727. Nanking–P.I. 71597. Nanksoy–P.I. 104881. Nansemond–Farmer selection (Virginia). Nansemond Early–Farmer selection (Virginia). Natsu–P.I. 19984. Nela–Louisiana Exp. Station selection. Nemo–P.I. 19985. New Bush Bean–Same as Midwest. New London–Same as Midwest. Nielsen–P.I. 22644B. Nigra–P.I. 22407. Norredo–Source unknown. Norsoy (Pridesoy)–North Dakota. Northern Hollybrook–Same as Midwest. Nuttall–P.I. 17253. O.A.C. 211–Canada Exp. Station. Ogden–Tennessee Exp. Station selection. Ogemaw–P.I. 17258. Ohio 9035–Same as Hamilton. Ohio Champion–Same as Midwest. Ohio Medium Green–Same as Guelph. Okute–P.I. 19986. Old Dominion–P.I. 44512.

Oloxi–Coker's Black Beauty. Ontario–P.I. 65344. Osaya–P.I. 80465. Otootan–Formosa [later Taiwan]. Otoxi–South Africa. Ottawa Mandarin–See Mandarin (Ottawa). Ozark–P.I. 37272. Pagoda–Canada Exp. Station. Palmetto–P.I. 71587. Patoka–P.I. 70218-2-19-3. Pee Dee–Coker's 31-15. Peking–P.I. 17852B. Pekwa–Combined with Kingwa. Pelican–Louisiana Exp. Station selection. Pennsoy–Pennsylvania Exp. Station selection. Perley's Mongol–Same as Midwest. Pine Dell Perfection–Farmer selection (Virginia). Pingsu–P.I. 18259. Pinpu–P.I. 28050. Pluto–P.I. 72219. Pocahontas–Farmer selection (Virginia). Premier–Same as Midwest. Preston–Virginia Exp. Station selection. Pridesoy–Twin City Seed Co. selection. Prolific–Same as Midwest. Purredo–Same as Norredo. Quillian–Farmer selection (Oklahoma). Ralsoy–Ralston-Purina selection. Rattlesnake–Kentucky Exp. Station selection. Red Otootan–Same as Tanner. Red Sable–Same as Peking. Red Tanner–Same as Tanner. Reiching–Ohio Report. Riceland–P.I. 20797. Richfield–Ohio Report (Richland?). Richland–P.I. 70502-2. Rila–Marsh Foundation, Ohio. Roanoke–North Carolina Exp. selection. Rokusun–P.I. 80481. Roosevelt–Same as Midwest. Rose Non Pop–Farmer selection (North Carolina). Round Black–Same as Buckshot. Royal–Same as Wilson-Five. S100–Missouri Exp. Station selection. Sable–Same as Peking. Sac–P.I. 80462. Sainte Anne–Canada Station selection. Samarow–P.I. 17260. Sangra [Sanga]–P.I. 70210-1. Saskatoon–Farmer selection (Canada). Sato–P.I. 81041. Scioto–Ohio Exp. Station selection.

Sedo–P.I. 23229. Seminole–P.I. 93058. Seneca–F.C. 03654A. Shanghai–Same as Tarheel Black. Sherwood–P.I. 17862. Shingto–P.I. 21079. Shiro–P.I. 81036. Siegenthaler–Same as Morse. Sioux–P.I. 81021. Sooty–P.I. 16790B. Sousei–P.I. 80476. Southern–Same as Mammoth Yellow. Southern Green–P.I. 62839. Southern Medium Green–Same as Tokyo. Southern Prolific–P.I. 37250. Soy Good–Same as Etum. Soysota–P.I. 28019. Stuart–P.I. 22644. Summerland–Canada Station selection [from British Columbia]. Super Quick–Same as Sousei. Suru–P.I. 89128. Swan–P.I. 22379. Taha–P.I. 21999. Tanloxi–Delta Station selection 483. Tanner–Farmer selection (Alabama). Tarheel–Same as Tarheel Black. Tarheel Black–P.I. 14952. Tarheel Brown–Same as Mammoth Brown. Tashing–P.I. 20854. Tastee–P.I. 86019. Tennessee Non Pop–Tennessee Exp. Station selection. Tensas–P.I. 104881. Texoil–Farmer selection (Texas). Tinzan–Australia selection. Toku–P.I. 86129. Tokyo–P.I. 17264. Trenton–P.I. 24610. Trinitaria–Salvador selection. U.S.-2–P.I. 70218-2. U.S.-5–P.I. 54563-5. Viking–Illinois Exp. Station selection. Vilnensis–Poland variety. Vireo–P.I. 22874. Virginia–P.I. 19186D. Virginia Brown–Same as Virginia. Volstate–Tennessee Exp. Station selection. Wabash–C463. Waseda–P.I. 80461-1. Wea–P.I. 30600. White–Same as Haberlandt. White Biloxi–Delta Exp. Station selection. White Eyebrow–P.I. 30745. Willomi–P.I. 81044-1.

Wilson–P.I. 19183. Wilson Black–Same as Wilson. Wilson Early Black–Same as Wilson. Wilson-Five–P.I. 19183-5. Wing's Royal–Same as Peking. Wisconsin–Ohio Report. Wisconsin Black–P.I. 25468. Wisconsin Early Black–Same as Wisconsin Black. Wisconsin Early Green–Same as Guelph. Wisconsin Manchu #3–Wisconsin Exp. Station selection. Wisconsin Manchu #606–Wisconsin Exp. Station selection. Wisconsin Mandarin #507–Wisconsin Exp. Station selection. Wolverine–P.I. 80490-1. Wonder–Same as Midwest. Woods Yellow–T.W. Woods Co. selection. Wyokatenn–Same as Yokotenn. Yellow–Same as Mammoth Yellow. Yellow Biloxi–North Carolina Exp. Station selection. Yellow Marvel–Farmer selection (Wisconsin). Yelnando–Coker's 433. Yelredo–Coker's 319. Yokotenn–P.I. 19981. Yoshioko–Same as Yosho. Yosho–P.I. 17262.

Note 1. This is the earliest document seen (June 2009) that mentions the soybean varieties Round Black or Yelnando. Both Yelnando (1948) and Yelnanda (1961) appear to have been developed by the Coker Seed Co. of Hartsville, South Carolina.

Note 2. This is the earliest document seen (Oct. 2004) which states that Round Black is the same as Buckshot, or that Wilson Black is the same as Wilson. Address: USDA, Bureau of Plant Industry, Soils & Agricultural Engineering, Div. of Forage Crops & Diseases [Beltsville, Maryland].

653. Dimmock, F. 1948. Soybeans. *Canada. Department of Agriculture, Farmers' Bulletin* No. 149. p. 1-19. June. Also called Canada. Dept. of Agriculture, Publication No. 807

(Actually 808). Revision of Farmers' Bulletin No. 80 (1939). Summarized in Soybean Digest, Nov. 1948, p. 38.
• ***Summary:*** Contents: Introduction. Description of the soybean plant. Soil and climatic adaptation. Uses of soybean seed: Soybean oil, soybean meal, soybean flour. Uses of the soybean for forage and soil improvement. Varieties (incl. maturity and seed color; see best varieties below): Yield, varietal adaptation, protein, oil, and iodine number, size of seed (weight in grams of 1,000 seeds for 11 varieties), color of seed. Culture: Soil preparation, lime and fertilizers, inoculation of the seed, time of seeding, method of seeding, rate of seeding, depth of seeding, cultivation, harvesting, threshing. Storage of the seed.

Until 1940 the area devoted to soybeans in Canada "did not exceed 20,000 acres annually, but since then it has increased steadily until it averages 50,000 to 60,000 acres with every indication of still further increase. Nearly all of the present soybean acreage is in Ontario. Small patches are being grown in Quebec, Manitoba, Alberta, and British Columbia and investigations are under way in practically every province to determine the possibilities for soybean production."

A map (p. 13) shows that Ontario is divided into 5 climatic zones for soybeans, with each zone having earlier and later areas. The varieties best suited for each zone and area are given. Proceeding roughly from north to south, they are: Pagoda (Maturity: very early. Seed color: yellow. Weight in gm per 1,000 seeds: 175), Kabott (early, yellow, 235), Flambeau (early, yellow with black hilum, 185), Goldsoy (yellow, 225), Capital (yellow with buff hilum, 162), Mandarin (Ottawa, yellow, 218), Earlyana (yellow with pale hilum, 181), Richland (yellow with dil. black hilum, 188), Harman (yellow with black hilum, 185), A.K. (Harrow, yellow with buff hilum, 165), and Lincoln (yellow with black hilum, 175).

Tables show: (4) Average maturity period, source, and origin of the 11 soybean varieties listed above. Note on sources: C.E.F. = Central Experimental Farm. D.E.F. = Dominion Experimental Farm. O.A.C. = Ontario Agricultural College. A.E.S. = Agricultural Experiment Station (USA). Address: Div. of Forage Plants, Experimental Farm Service, Ottawa, ONT, Canada.

654. Cohn, Henry I. 1948. The Rickard Koreans. *Soybean Digest.* Aug. p. 13, 28.
• ***Summary:*** In 1941 the Dominion Experiment Station at Harrow, Ontario, received from Asia about 1 pound of seed of each of many traditional soybean varieties for experimental purposes. The station did little or nothing with the sample of one of the varieties that had unusually large seeds, probably thinking that it would require an unusually long maturity period.

W.G. Baldwin of Harrow, Ontario, a Canadian farmer not connected with the Experiment Station, obtained a sample of this large-seeded soybean, planted the seed in 1942, and discovered that it was a variety that yielded well and matured one week ahead of the variety Richlands.

E.T. Rickard of Champaign, Illinois, who owned farms in both Ontario and Illinois, saw the soybean growing in Canada, and brought 1 bushel to Illinois in 1942 and 8 bushels in 1943. Rickard gave three pecks of the original bushel to H.I. Green, a close friend, on the condition that they would be planted nearby where Rickard could observe them. P.A. Stone of Pleasant Plains was given some seed which was planted in 1944. Mr. Rickard first planted these on his farm in Alexander, Illinois, in 1944.

The unfolding story of the Rickard Koreans is told. A portrait photo shows E.T. Rickard in 1942; he died in 1947. Address: Manager Valley Farms, Carrollton, Illinois.

655. Hildebrand, A.A. 1948. Soybean diseases in Ontario. *Soybean Digest.* Aug. p. 16-17.
• ***Summary:*** Since 1942, 14 diseases have been found. Eight or nine of them are seed borne. Mosaic and pod and stem blight were severe in 1942. Address: Dominion Lab. of Plant Pathology, Harrow, Ontario.

656. *Soybean Digest.*1948. Grits and flakes... from the world of soy: Victory Mills, Ltd., Toronto. Aug. p. 34.
• ***Summary:*** "A fine example of color printing is the recent folder by Victory Mills, Ltd., Toronto [Ontario, Canada], describing the firm and its soybean and linseed and malt products."

657. McFarlane, W.D. 1948. Chemurgy in Canada. *Chemurgic Digest* 7(9):22-26. Sept.
• ***Summary:*** The "National Chemurgic Committee of Canada" was organized in 1938 as an activity of the Canadian Chamber of Commerce. A photo in the section on soybean oil (p. 23) has the caption: "Aerial view shows the highly modern Toronto plant of Victory Mills, Ltd, an important center of research in the chemurgic utilization of farm products."

A sharp expansion in soybean acreage took place in 1942 when a floor price was established for number one beans. The peak year was in 1946 when 59,200 acres produced just over 1 million bushels of soybeans. A record production is indicated for 1948. Ontario province accounts for 96% of Canada's soybean production. The limits of this crop's expansion will not be reached until Canada has replaced all imports of edible oils.

"The completion in 1944 of the large solvent extraction plant of Victory Mills Limited, Toronto, established for the first time in Canada a stable market for soybeans and ensured the Ontario farmer of ready disposal of his crop.

"Much progress has been made in Canada in research on the modification of soybean oil in order to convert this

semi-drying variety into an oil with enhanced drying properties...

"Soybean oil has been found to be ideal for solvent segregation which splits it into two fractions–a fast-drying oil and a new improved food oil–each fraction being superior to the original oil for certain specific uses."

Photos show: Dr. W.D. McFarlane, D.G. McKenzie, D.L. Morrell, E.S. Archibald, G.A. Ledingham, W.H. Cook, and H.B. Speakman. Address: Vice Chairman, National Chemurgic Committee, Canadian Chamber of Commerce; Director of Research, Canadian Breweries Ltd. and Victory Mills Ltd., Toronot, Canada.

658. Ross, J.V. 1948. Soybeans in the Canadian fats and oils economy. *Soybean Digest.* Sept. p. 47-48.

• ***Summary:*** "You are aware of the fact that Canada is deficient in edible vegetable oils, and that we have always been an importing nation. During the last war however, when imports from other countries were cut off, it became apparent that we would have to produce more of our requirements, consequently, the growing of oilseed crops, such as soybeans, sunflower and rapeseed was encouraged and promoted.

"Of these crops, the production of soybeans was by far the most successful in Ontario. In prewar years, our annual production totalled a mere 50,000 bushels... this year it is estimated the production in Ontario will exceed by a considerable margin the 2 million bushel mark. This, however, will supply only about 20 percent of our present domestic edible oil requirements. There is a possibility the requirements will become still greater by the legalizing of the manufacture and sale of margarine.

"At the present time, soybean oil represents over 30 percent of our total liquid edible oil consumption. The source of this oil is, of course, our domestic production plus importations of beans and oil from the United States. During the war, and until August 1st of this year, our fats and oils, both domestic and imported, were under strict government control. The sale of soybean oil could only be made to certain manufacturers as designated by the government, and the oil was allocated almost exclusively to the shortening trade." Address: Victory Mills, Ltd., Toronto.

659. Dimmock, F. 1948. Korean soybeans (Letter to the editor). *Soybean Digest.* Oct. p. 7.

• ***Summary:*** Concerns an article titled "The Rickard Koreans" in the August issue of this magazine (p. 13, 28). The writer is interested in the origin of the Early Korean variety insofar as the Dominion Experimental Station at Harrow, Ontario, is concerned. Dimmock writes: "I was in charge of corn and soybean breeding work at this station from 1924 to 1929. In 1924 I received envelope samples of seed of several lots of soybeans and one of them was labelled 'Early Korean,' China. I do not remember how these envelopes came into my possession, but I grew all the seed in short rows in 1924, sufficient to have enough for testing purposes in 1925."

"These tests were run for several years. I left Harrow to come to Ottawa in 1929 and they were still being conducted at that time. During this period, I made two selections which were licensed as varieties in Canada, one from the A.K. variety, which was named A.K. (Harrow) and the other from Mandarin, which was named Mandarin (Ottawa). Both of these varieties are still being grown here.

"Early Korean was among the highest yielders in our tests. It was strong in the straw, but was rather short for a fairly late variety. It was not quite as late as A.K. (Harrow), but neither was it as tall and it did not yield quite as well. I, therefore, selected A.K. (Harrow) as the better variety for southwestern Ontario and Mandarin (Ottawa) as an early variety for central and eastern Ontario, where the season is shorter.

"I had several times thought of releasing 'early Korean' as a variety, but there was practically no interest in Canada in growing soybeans at that time and even until the beginning of the war in 1939 the total acreage did not average more than 9,000 to 10,000 acres annually. During the war period and since its close the acreage of soybeans has shown a steady increase until this year 1948, it is estimated to be about 100,000 acres.

"As your article was not clear on the origin of the Early Korean variety, I thought that you might like to know something of its early history at Harrow, Ontario." Address: Central Experimental Farm, Dep. of Agriculture, Ottawa [ONT, Canada].

660. Owen, C.W. 1948. Soybeans at Harrow: Breeding work at the Ontario Experiment Station. *Soybean Digest.* Nov. p. 18.

• ***Summary:*** "For several years previous to 1941 the acreage devoted to soybeans in Ontario ranged from 8 to 10 thousand acres annually. In 1941 the acreage increased to 40,000 acres and has been above this figure ever since, the largest acreage of 59,200 being recorded in 1946... The Dominion Experimental Station at Harrow is located in Essex county where soybean testing work has been underway since the early 20's."

The first important variety developed and released was A.K. (Harrow). It is widely grown in Essex and Kent counties, where it can be matured. "The work of hybridizing between varieties from which the present breeding program has developed began in 1931. Since that time one new variety, Harman, has been released. This variety matures about a week earlier than A.K. (Harrow) and therefore, may be grown over a wider section of the district. The acreage devoted to Harman was quite extensive in 1947.

"In 1948 a new variety, Harly, is being released. It will find a place in the shorter season sections..." Address: Asst.,

Forage Crops, Ontario Agric. Exp. Station, Harrow, ONT, Canada.

661. **Product Name:** Soybean Oil, and Soybean Oil Meal (Named CVOP Soybean Oil Meal by 1952).
**Manufacturer's Name:** Canadian Vegetable Oils, Ltd. Renamed Canadian Vegetable Oil Processing Ltd. by 1952.
**Manufacturer's Address:** Victoria Ave. and Burlington St., Hamilton, ONT, Canada.
**Date of Introduction:** 1948.
**Ingredients:** Soybeans.
**New Product–Documentation:** *Soybean Blue Book.* 1948. p. 74. No address is given.

*Soybean Blue Book.* 1952. p. 94. The entry now reads: Canadian Vegetable Oil Processing Ltd., Victoria Ave. and Burlington St., Hamilton. 7 expellers, capacity 150 tons. Storage capacity: 500,000 bushels. CVOP soybean oil meal. Served by CN RR.

Soybean Blue Book. 1968. p. 96.

*Soybean Digest Blue Book.* 1978. June. p. 118. French, Blaw-Knox hexane solvent, capacity 1,000 tons. Storage capacity 700,000 bushels. CVOP Soybean Meal.

Note: This is the earliest record seen (Jan. 2010) concerning Canadian Vegetable Oil Processing Ltd. (Hamilton, Ontario) in connection with soybeans. The company was later renamed CVOP, then CanAmera Foods.

662. **Product Name:** Soybean Oil, and Edible Brand Soybean Oil Meal.
**Manufacturer's Name:** Edible Oils Limited.
**Manufacturer's Address:** P.O. Box 130, Fort William [Thunder Bay], ONT, Canada.
**Date of Introduction:** 1948.
**Ingredients:** Soybeans.
**New Product–Documentation:** Soybean Blue Book. 1948. p. 74. Plant and offices: P.O. Box 130, Fort William, Ont., Canada. Gen'l offices: Grain Exchange Bldg., Winnipeg, Manitoba, Canada. Naptha [Naphtha] solvent, capacity 50 tons. Storage capacity: 50,000 bushels. "Edible Brand" soybean oil meal.

Soybean Blue Book. 1968. p. 96.

663. Katznelson, H.; Richardson, L.T. 1948. Rhizosphere studies and associated microbiological phenomena in relation to strawberry root rot. *Scientific Agriculture (Ottawa)* 28:293-308. [27 ref]*

664. Victory Mills, Ltd. 1948. Beans of bounty (Color motion picture). Toronto, Ontario, Canada. 20 minutes. With sound. *
• ***Summary:*** About soy in Canada. "The audience is taken to farms in Ontario where the value of feeds containing soy products is illustrated. From there, the camera focuses on research under way at the Agricultural College and the experiment station to develop suitable soybean varieties. By means of animation, Canadian production and consumption of edible oils are shown. Final scenes show harvesting and explain why Ontario farmers are growing more and more soybeans. This film is staged in Canada, but most of the points made are applicable to the U.S."

665. **Product Name:** Soywhite Fat Free Flour.
**Manufacturer's Name:** Victory Mills, Ltd.
**Manufacturer's Address:** 285 Fleet St. East, Toronto, ONT, Canada.
**Date of Introduction:** 1948.
**New Product–Documentation:** Soybean Blue Book. 1948. p. 74. Soybean Blue Book. 1949. p. 100. Cocosoy is no longer listed. Indosoy still is. Soya Bluebook. 1986. p. 85. Victory Soya Mills Ltd. is now a division of Central Soya Co. Inc. and is located at 333 Lake Shore Blvd., E. Toronto, ONT, M5A 1C2, Canada.

666. Food and Agricultural Organization of the United Nations. 1948. Soybeans: Area, yield, and production. *Yearbook of Food and Agricultural Statistics–Production.* See p. 101-02.
• ***Summary:*** Under soybeans, gives region / continent and country, then statistics for soybean area, yield, and production for each soybean producing country. Statistics show that the following countries produced the following amounts of soybeans (measured in 1,000 metric tons) during the 1934-38 period.

Europe: Austria 0.2. Bulgaria 11.6. Czechoslovakia 0.9. Hungary 0 (but 1.3 in 1945). Italy less than 50 metric tons (but 0.9 in 1945). Poland 0.5. Rumania [Romania] 11.7, Yugoslavia 1.5. Europe total: 27.0.

USSR: (97.1).

North America: Canada 5.5. United States 1,164.0. Total 1,170.0

Asia: China: China Proper 6,092.7, 3,851.0, Taiwan (Formosa) 4.2. Indonesia: Bali and Lombok 9.0, Java and Madura 236.4. Japan 325.1. Korea 518.6. South Korea 0 (but 122.2 in 1945 and 130.6 in 1946). Philippines 0 (but 0.2 in 1946). Siam [later Thailand] 3.6. Turkey (but 0.4 in 1945). Asia total: 11,070.0.

Africa: Nyasaland 0 (but 0.4 in 1946). Ruanda-Urundi 0 (but 0.9 in 1947). Southern Rhodesia less than 50 metric tons (but 0.2 in 1945). Uganda 0 (but 2.6 in 1946). Union of South Africa 0 (but 1.5 in 1945).

World totals (Excluding USSR): 12,300.0.

Note: This is the earliest document seen (Nov. 2007) that gives soybean production or area statistics for Turkey or for the Middle East. This document contains the earliest date seen (1945) for soybean production or area statistics for Turkey or for the Middle East.

667. Quigley, D.T. 1948. The national malnutrition. Milwaukee, Wisconsin: Lee Foundation for Nutritional Research. See p. 3, 38. *
• ***Summary:*** The Indians of northwestern Canada enjoyed good health and long life before they began consuming the white man's food. "They took to this with as great enthusiasm as they did to alcohol; resulting in many cases of arthritis, tuberculosis, and tooth decay, with a shortened period of life and lessened ability to work. The Indians in the back country who did not have access to the white man's food kept their good health; they had no tuberculosis or any of the other diseases mentioned."

668. Victory Mills, Ltd. 1948. For the successful farmer. New soybean guide. Toronto, Canada. 20 p. Summarized in Soybean Digest, May 1948, p. 8. *
• ***Summary:*** This booklet contains considerable information on how to grow soybeans in Canada, including a variety zone map for southern Ontario, where practically all of Canada's soybeans are grown.

"Canada can no longer freely import her fats and oils requirements, and it is necessary for us to promote production, both from a point of relieving our immediate shortage and to better our position in the future, so as to avoid being dependent on imports of these essential commodities which are produced in the far-flung corners of the globe. It is recognized today that it is an economic and strategic necessity for Canada to be more self-sufficient in respect of these vital edible and industrial fats and oils.

"Soybeans are the only crop in Canada which produce edible vegetable oil in substantial quantities." Address: Toronto, ONT, Canada.

669. *Soybean Digest.*1949. Margarine goes on sale in Canada. Jan. p. 26.
• ***Summary:*** Canada's margarine law was passed in 1886. Since then, except for a brief period during World War I, margarine could not be manufactured or sold legally in Canada.

However on 14 December 1948 the Canadian Supreme Court threw out the 62-year-old legal ban on margarine production in Canada. Canadian margarine manufacturers jumped into immediate operation. Some margarine went on sale in Vancouver [British Columbia] stores within a week after the ruling. The product was said to look and taste like butter, but it sold for a much lower price. Canada now has no regulations on the manufacture or sale of margarine, except for a ban on importing margarine from other countries. Strong federal and state anti-margarine legislation still exists in the USA. A photo shows mixing vats in a margarine plant.

670. American Soybean Association. 1949. Soybean Blue Book. Hudson, Iowa: American Soybean Assoc. 128 p. Advertisers' index. 22 cm.
• ***Summary:*** A table (p. 56) shows "Production of soybean oil and cake in Canada" (1945-1947). In 1946-47 Canada produced 22.8 million lb of oil and 105 million lb of cake and meal. Address: Hudson, Iowa.

671. Associated Seed Growers, Inc. 1949. A descriptive catalog of vegetables (No. 14): Asgrow. New Haven, Connecticut. 23 cm.
• ***Summary:*** An outline map of the United States, titled U.S. Asgrow, shows the location of 26 production branches (with codes letters indicating whether peas, beans, corn, or garden seed are produced at each branch), 8 breeding and research stations, and 16 sales branches. A bold letter in a box indicates: A–Associated Seeds, San Antonio, Texas. B. Grimm Alfalfa Seed Growers of Alberts, Ltd., Brooks, Alberta, Canada. C–Asgrow Export Corporation, New Haven, Connecticut. Address: New Haven, Connecticut.

672. *Soybean Digest.*1949. Conducts soybean trials in Britain. March. p. 34. [3 ref]
• ***Summary:*** J.C. Ferree, director of Soya Foods, Ltd., London, believes that the question of growing soybeans in the British Isles should be considered. He has been growing a number of varieties experimentally; they come from Yugoslavia, Manchuria, Canada, the USA, etc.

Henry Ford's Fordson Estates grew soybeans in Essex, England, in the early 1930s on a significant scale. "The crop was successful agriculturally but not economically."

Photos show: (1) A Yugoslavian variety that matured and produced small yellow seeds in 1948; it was suggested for forage and silage. (2) Canadian Mandarins, which also matured in 1948; a 100-day variety in Canada, they took 160 days to mature in England.

673. Owen, C.W. 1949. New Canadian variety [of soybean–Harly]. *Soybean Digest.* June. p. 8.
• ***Summary:*** The new soybean variety, Harly, was bred at the Dominion Experimental Station, Harrow [Ontario], and accepted for registration by the Canadian Seed Growers' Association. It originated from a selected segregate in a cross between Mandarin and A.K. (Harrow). It is 6 to 15 days earlier than both parents, superior to Mandarin in yield, and stands 12 inches higher. Its height and stem strength make it suitable for harvesting with a combine.

Only a small amount of Harly seed was available for planting in 1948, but enough should be available in 1949 to produce sufficient acreage. A photo shows a man standing in a field of Harly soybeans. Address: Asst., forage crops, Dep. of Agriculture Experiment Station, Harrow, Ontario.

674. *Soybean Digest.*1949. Wins top film award. July. p. 22.
• ***Summary:*** "The Victory Mills, Ltd., film on soybeans, 'Beans of Bounty,' has shared top honors in the non-

theatrical class of the Canadian Film Awards, it is announced."

675. Owen, C.W. 1949. Soybeans in Ontario. *Soybean Digest.* Sept. p. 56-57.
• ***Summary:*** A good history and overview. A table shows Ontario soybean acreage and production from 1941 to 1949 (estimate). During this period acreage grew to 120,000 from 10,900 and production increased to 2,250,000 bushels from 216,000. Ontario's two southernmost counties of Essex and Kent grow more than 70% of the present total acreage. The most popular soybean varieties in the main section of Ontario's soybean belt are currently Harman (25% of total), Lincoln (20%), A.K. (Harrow, 15%), Mandarin (15%), Earlyana (10%), Capital (5%), Hawkeye (5%), Others (5%). A photo shows C.W. Owen. Address: Asst. Forage Crops, Dep. of Agriculture Experiment Station, Harrow, Ontario, Canada.

676. *Chemurgic Digest.*1949. Friends of Chemurgy: Edward J. Dies. Oct. p. 1.
• ***Summary:*** Dies is described by adjectives such as "energetic," "thorough," "definite," "forceful," and "chemurgic." "For 13 years he has been a sponsor of the National Farm Chemurgic Council. For the past 10 years he has represented industry on the Council's board of governors."

In college he studied finance and economics. His extensive travels as a newspaper correspondent have him broad exposure to agriculture. As a writer for the Canadian government he advocated colonization of the prairie provinces [Manitoba, Saskatchewan, and Alberta]. "For seven years with Associated Press and one year with United Press, he served as a staff correspondent." The author of seven books, he operated his own public relations bureau in Chicago, Illinois, for 20 years before moving to Washington, DC, in 1945. For most of that period, his main interest was agriculture. Today he is chairman of the Soy Flour Association.

"He has a deep-seated conviction that the farmer–not industry or labor–will in the end be responsible for the preservation of our democratic form of government." He also believes: "The work that Wheeler McMillen, John Ticknor and the other chemurgic leaders are doing today will brighten the history books of tomorrow. It is tremendously important. It right down to the very roots of agriculture which, after all, are the roots of democracy." A small portrait photo shows Edward J. Dies.

677. *Soybean Digest.*1949. Ontario sets bean price. Oct. p. 6.
• ***Summary:*** The price was set by the Ontario Soybean Marketing Board, Toronto. "Price Sept. 29 was $2.33½ per bushel delivered to the country elevator with ½ cent deducted to finance the marketing board. The devaluation of the Canadian dollar raised the price about 15 cents per bushel."

Soybean processors in Canada are Victory Mills, Canadian Vegetable Oils, and Toronto Elevators.

678. *Lafayette Journal and Courier (Indiana).*1949. Retired agronomy professor is dead. Dec. 12.
• ***Summary:*** Prof. Alfred T. Wiancko, age 77, died Saturday morning [Dec. 10] at Eustis, Florida, of bronchial pneumonia. In 1943, when he retired, he was given the title of professor emeritus of agronomy and continued to keep in touch with research activities at the university.

A bachelor until after his retirement, Prof. Wiancko was married on 5 Nov. 1949 to Maria Eva Featherly of Niagara Falls, New York. But their marriage was to last for little more than a month. On their way to Eustis, Florida, where he had spent the winter months for the past several years, he became ill and was hospitalized for a week. The couple then proceeded to Florida, where he entered a hospital several days before he died. He had made his summer home near Toronto, Canada.

Gives a brief biography of Prof. Wiancko, who was born on 16 Oct. 1872 in Ontario, Canada. The funeral was held at Crestes / Orestes [Eustis?], Florida, and the body was sent to Orillia, Ontario, Canada, for burial.

679. *J. of Farm Economics.*1949. The Ontario Soya Bean Growers' Marketing Scheme, 1949. 31(3-4):615. *
• ***Summary:*** Provincial marketing acts have been passed in Alberta, Saskatchewan, and other Canadian provinces.

680. Alfred Theodore Wiancko: 1872-1949. 1949. Lafayette, Indiana: Purdue Univ. Dep. of Agronomy. 1 p. Unpublished typescript.
• ***Summary:*** This is a combination obituary and memorial resolution: "Alfred Theodore Wiancko was born in Ontario, Canada and reared on a farm in that Province. He was graduated from the Ontario Agricultural College in 1895 following which he served there three years as Assistant Librarian and Instructor in German. From 1901 through 1902 he served as Instructor in Agriculture and Assistant Agriculturist at the Nebraska College and Station.

"In January, 1903, Wiancko was appointed Associate Professor and Associate Agriculturist at Purdue University and headed up both teaching and research in agronomic subjects. The School of Agriculture was reorganized into 4 major departments in 1908 and Prof. Wiancko became Head of the Agronomy Department. In the A.E.S. [Agricultural Experiment Station] the Department of Agriculture was changed to the Department of Agronomy in 1909 and in 1911 the soil fertility work of the Chemical Department was combined with the crops work of the Agronomy Department and called the Soils and Crops Department under A.T.

Wiancko, Chief. In the fall of 1903, Prof. Wiancko and M.L. Fisher organized and taught two courses in crops and two courses in soils. Other courses in agronomy were added from time to time as well as additional staff members."

"Prof. Wiancko's primary interest was in research. In addition to the 10 acres of the University Farm set aside for research in agriculture (agronomy) he conducted a large number of cooperative tests with farmers in the early years. It was through these tests that soybeans were introduced into the Cornbelt in 1904. These cooperative tests were later replaced by outlying experiment fields on the major soil types of the state. At one time there were 11 such fields. In 1913, Prof. Wiancko was instrumental in having the University acquire the Wilson Farm–later the Soils and Crops Farm–consisting of 120 acres immediately east of Lafayette..."

"A full time soybean specialist was attached to the Agronomy Department in 1935 in cooperation with the Central Soybean Laboratory of the U.S.D.A."

"Prof. Wiancko was a prolific writer on agronomic subjects and was either author or co-author of 23 bulletins, 27 circulars and 27 soil survey reports. He was active in the American Society of Agronomy in which he was elected a Fellow. He served with the Soil Survey Association in this country and as its President in 1922."

"Prof. Wiancko retired as Chief of the Agronomy Department July 1, 1943 with the title of Professor Emeritus until his death December 10, 1949."

Source: Purdue University, West Lafayette, Indiana, in the Department of Agronomy, Biographical File–Department Heads. A copy is on the back of Prof. Wiancko's portrait hanging in the Department Heads Conference Room. Address: Dep. of Agronomy, Purdue Univ., West Lafayette, Indiana.

681. Bailey, Ethel Zoe. 1949. Glycine soja–U.S. and Canadian sources. Ithaca, New York: L.H. Bailey Hortorium. 1 card. Unpublished.

• ***Summary:*** *Glycine soja* is the scientific name for the wild soybean, an annual plant. This hand-written index card is in the Bailey Hortorium's index system of nursery catalogs and/or botanic garden seed lists developed by Ethel Zoe Bailey. On the card are two-part coded entries referring to botanic gardens or nurseries. Part 1 is the code for the name of the botanic garden, and part 2 is the last two letters of the earliest year in which the plant for that card appeared in this garden's catalog. There is only one listings for *Glycine soja* from U.S. and Canadian sources:

(1) M.B.G. 49–Montreal Botanic Garden, 4101 or 4581 Sherbrooke St. East, Montreal, Quebec, Canada, 1949. Address: L.H. Bailey Hortorium, 462 Mann Library, Cornell Univ., Ithaca, New York 14853-4301. Phone: 607-255-7981. Fax: 607-255-7979.

682. Roberts, I.M.; McRostie, G.P. 1950. The soybean as a grain crop in Ontario. *Ontario Department of Agriculture, Bulletin* No. 474. 19 p. Feb. Summarized in Soybean Digest, July 1950, p. 26.

• ***Summary:*** Contents: Introduction. Where to grow soybeans. Soybeans and the soil. Soybeans in the rotation. Preparation of the seed bed. Depth of seeding. Time of planting. Sow only good seed: It is sound practice to purchase Registered or Certified seed at least once every 3-4 years, seed germinating at 85% or better should give satisfactory field stands, try to plant seed grown the previous year, seed should be cleaned of inert materials, weed seeds, splits, and foreign seeds, several forms of seed protectant dusts may be purchased for treatment against disease. Inoculation.

Method and rates of seeding: There are many advantages of planting soybeans in rows rather than solid (7 reasons are given), narrower rows (down to 21 inches) give larger soybean yields than wider rows (42, 36, 28, or 24 inches; see the 1949 High Yield Soybean Contest for Ontario). Weeds vs. soybeans. Weed control implements (such as rotary hoe, finger weeder, a set or ordinary, light, spike-toothed harrows). Methods of weed control [mechanical].

Varieties: Soybeans, like corn, vary in their "time to maturity, use the right variety for each of Ontario's five zones (a table is given), later maturing varieties include (from Zone 1 to 5) Lincoln, A.K., Harman, Hawkeye, Earlyana, Blackhawk, Monroe, Harly, Mandarin, Capital, Goldsoy, Flambeau, Kabott; earlier maturing varieties include (from Zone 1 to 5) Earlyana, Blackhawk, Monroe, Harly, Mandarin, Capital, Flambeau, Kabott, Pagoda.

Harvesting. Storage. Fertilizer.

Photos show: (1) Two boys standing in a large field of soybeans. "The growing of soybeans is now big business on many Ontario farms." (2) A man holding soybean roots that are well nodulated. (3) A large field of soybeans at the Ontario Agricultural College where the effect of varying the distance between is studied. (4) A tractor pulling a finger weeder in a field of soybeans. (5) A large field of soybeans in which the weeds have been controlled. (6) A well-podded soybean plant growing at the end of a row.

Figures show: (1) A pair of bar charts of inoculated vs. non-inoculated soybeans, in high- and low-fertility soils. "Inoculation pays dividends." (2) Bar chart showing the effect of weed competition on soybean yields. "There is money in weed control." with Capital and Mandarin varieties. (3) A map (p. 16) shows each of the soy-bean growing counties in Ontario. The southernmost county in Ontario is Essex, on the shores of Lake Erie. Moving northward, we find Kent County, Elgin County, and Lambton County.

"Few crops in the history of Ontario agriculture have had the phenomenal increase in acreage that has been

experienced in the case of the soybean during the past decade... It is only in the past eighteen years that the crop was considered of sufficient importance to be recorded in provincial agricultural statistics.

"In 1932 the acreage was recorded at 7,781. For the succeeding nine years the acreage remained between 8,602 and 11,272. The demand for oil and protein during the war years [World War II], coupled with a very substantial increase in price, raised the acreage nearly four hundred percent." Soybean production in Ontario decreased immediately after the war, but by 1949 it "had more than doubled from the highest war year production. Most recent figures for soybean production in 1949 are" about 110,000 acres.

"Until recently it was felt that soybean production was confined to Essex and Kent Counties [the two southernmost counties in Ontario]. Now high-yielding, early maturing varieties have made the greater part of old Ontario a potential soybean area with yields and net returns comparable to other cash crops." (p. 3). Address: Dep. of Field Husbandry, Ontario Agricultural College, Guelph, Ontario, Canada.

683. Rouatt, J.W.; Atkinson, R.G. 1950. The effect of the incorporation of certain cover crops on the microbiological balance of potato scab infested soil. *Canadian J. of Research, Section C: Botanical Sciences* 28(1):140-52. Feb. [16 ref]
• ***Summary:*** After soil was infected with potato scab *(Streptomyces scabies),* several cover crops (rye, red clover, and soybeans respectively) were grown, then incorporated into the soil. The growth and turning in of several soybean crops reduced the incidence of disease. The incidence of scab (on the basis of tuber area) was reduced from 48% in the control soil to 10.3 after two crops of soybeans. Neither rye nor clover produced significant reduction in the incidence of scab.

The soybean treatment also produced a 4-fold increase in beneficial bacteria. This increase was similar to that reported by West & Hildebrand (1941) with bacterial around infected strawberry roots.

The difficulty of interpreting this effect of green manuring with cover crops of soybeans to reduce potato scab was recognized by the authors. They pointed put that green manuring with soybeans reduced the pH of the soil from 6.4 to 5.0, whereas green manuring with rye or clover did not change the pH value of the soil. This effect on soil pH value alone might be responsible for much of the reduction of incidence of scab. Address: 1. Assoc. Bacteriologist, Div. of Bacteriology and Dairy Research, Science Service, Dep. of Agriculture, Ottawa, Canada.

684. Watts, Sybil. 1950. Women's lives tied in with legume, in cosmetics, soap, cleaners, candies. *Windsor Daily Star (Essex County, Ontario, Canada).* March 23. p. 9.
• ***Summary:*** Few home makers or business girls realize how closely their lives are tied to the soybean. Soy lecithin is used in cosmetics, such as lipstick, as well as in baked goods, soaps, dry cleaners, gasoline, oils, and candles. Essex County grows more than 35% of the soybeans cultivated in Canada, and Essex and Kent counties combined account for 70%. Yet despite the rapid growth of this crop in Canada, the country still imports about two-thirds of the soybeans it needs. Dr. G.F.H. Buckley, of the Dominion Experimental Farm, Harrow, points out that "The soybean is the closest thing in the vegetable kingdom to animal protein." Thus soybeans can be used with good results "to pad out [extend] meat dishes" with almost the same protein value.

Four photos titled "Soybean ills are cured at laboratory of plant pathology in Harrow" show (1) Miss Gladys Hedges of Harrow (hand sorting soybeans to separate discards from basic seed stock); (2) Dr. A.A. Hildenbrand of the Dominion Laboratory of Plant Pathology, Harrow (he has diagnosed and cured 14 soybean diseases); (3) Dr. G.F.H. Buckley and Mr. C.W. Owen (who share responsibility for the extensive growth of soybeans in this area); and (4) and Mrs. Joseph Menard, who is applying lipstick made in part from soybean lecithin.

685. American Soybean Association. 1950. Soybean Blue Book. Hudson, Iowa: American Soybean Assoc. 128 p. Advertisers' index. 22 cm.
• ***Summary:*** This is the first issue of the *Blue Book* that contains a directory of soybean crushers outside the USA and Canada. They are listed by alphabetically by country, as follows: France (3 crushers). Germany (10). Norway (1). Address: Hudson, Iowa.

686. Loblaws. 1950. As modern as tomorrow: Streamlined, sparkling markets (Ad). *Toronto Daily Star (Canada).* May 16. p. 50-51.
• ***Summary:*** Near the lower left of page 51 (a full-page ad) are these two small ads:

"Vi-Tone Fast Fudge Mix. Maple or Vanilla. 12-oz. pkg. 29¢."

"Vi-Tone 8 oz. tin 37¢. New design can [an illustration is shown], but still with seven nourishing foods in one tasty drink. Milk, sugar, soya bean flour, barley malt, cocoa with added Vitamins and Minerals." Address: Toronto.

687. Fletcher, Merna Irene. 1950. Changes in world soybean production in 1949. *Soybean Digest.* June. p. 20-21, 28.
• ***Summary:*** The USA is again the world's largest soybean producer, followed by China and Manchuria. All three countries reported smaller soybean crops in 1949 than in 1948. Production in Canada continues to increase, as it has

for the past 6 years. Canada's average yield per acre was 25.1 bushels/acre or nearly 3 bu/acre higher than the U.S. average. Brazil is the only other country besides Canada in the Western Hemisphere with recorded soybean production for 1949. Brazil produced an estimated 1 million bushels in 1949, which is double the figure for 1947. Slightly more than half the 1948 crop was exported. European production continues to decline. The only country reporting during 1949 was Italy, which had only 52,000 bushels, compared with 107,000 in 1948. Production in the USSR is increasing. "The extensive research program begun several years ago is no doubt bearing fruit, particularly in the Soviet Far East where Balzac *(Economic Geography of the USSR,* American edition) reports a big development in the Amur-Ussuri River Valley.

"The major decline in world production occurred in Asia, more specifically in Manchuria and China... No figures have come out of North Korea since 1946. Previously it was the great producing area of the country. South Korean production continues to show marked increase. The 1949 crop of 6,654,000 bushels is 1.7 million bushels more than was produced in that area in 1948. The average production for Korea from 1935-39, when most of production was in the north, was 17,654,000 of which less than 2 million bushels were produced in South Korea."

In Africa, Tanganyika reported only 36,000 bushels, less than half the 1948 crop. The Union of South Africa reported 80,000 bushels, the largest soybean crop ever produced there.

688. *Soybean Digest.*1950. Canadian margarine decision is upheld. Nov. p. 24.
• ***Summary:*** "The Canadian Supreme Court, in Dec. 1948, declared that the legislation that had banned the manufacture and sale of margarine in Canada for many years was invalid." The Privy Council in London, England, has upheld the Canadian margarine decision, and confirmed that "the responsibility for regulating the sale and manufacture of margarine in Canada rests with the various provinces themselves, rather than the Dominion Government."

689. *Soybean Digest.*1950. Exports to Cuba. Nov. p. 20.
• ***Summary:*** Exports of soybean oil to Cuba from the USA in 1949 amounted to 4,812 tons, crude oil equivalent, more than to any other country in the Western Hemisphere except Canada, and 2.5 times the annual average quantity sold to Cuba in 1935-39.

690. Hildebrand, A.A.; Koch, L.W. 1950. Observations on six years' seed treatment of soybeans in Ontario. *Scientific Agriculture (Ottawa)* 30:112-18. [11 ref]*
• ***Summary:*** This study confirms earlier views that where high quality soybean seed of high germination is sown, seed treatment is of doubtful value. Soybeans were treated with 6 different seed protectants. In only one case where extremely poor seed (40% visibly diseased, 23.4% germinating capacity) was treated with Spergon (tetrachloro-para-benzo-quinine) did the treatment lead to increased emergence and yield. Rainfall, temperature, and yield data given in the study show the far greater effect of rainfall, and its distribution over the growing season, on yields. Results showed that though seed treatment might lead to an increased stand of plants, yields remained largely unaffected. Address: Dominion Plant Pathology Lab., Harrow, Ontario, Canada.

691. Photograph of the T. Amano Co. in Vancouver, British Columbia, Canada. 1950. Vancouver, British Columbia, Canada.
• ***Summary:*** This black-and-white photo, sent to Soyfoods Center in 1981 by T. Amano Co. of British Columbia, shows the front of a small, modern building. A floor-to-ceiling panel of glass bricks are to the left of the main door near the center. Over the door, in large letters is written: "T. Amano Co." On the right front window, partly covering venetian blinds, in smaller letters, we read on five lines: "T. Amano Co. Manufacturers–Soya sauce & rice paste [miso]. Oriental food products. Importers & exporters." Address: Vancouver, British Columbia, Canada.

692. **Product Name:** Whipping Agent.
**Manufacturer's Name:** W.A. Cleary Corp.
**Manufacturer's Address:** New Brunswick, New Jersey. Also Chicago, Illinois and Bellevue, Ontario, Canada.
**Date of Introduction:** 1950.
**New Product–Documentation:** Soybean Blue Book. 1950. p. 88. "Whipping Agents." This product was probably manufactured for Cleary by some other company. 1959. Also in Skokie, Illinois. 1961 was last year of listing.

693. Burtis, E.L. 1950. World soybean production and trade. In: K.S. Markley, ed. 1950. Soybeans and Soybean Products. Vol. I. New York: Interscience Publishers or John Wiley & Sons. xvi + 1145 p. See p. 61-108. [17 ref]
• ***Summary:*** Contents: 1. Historical summary. 2. The Far East: China, Manchuria, Korea, Japan, Netherland Indies, other countries of Asia, net foreign trade of Asia. 3. Europe: Production, foreign trade. 4. United States: Varietal development, trends in planted acreage, soybeans for seed, acreage and production of soybeans for hay, vegetable-type soybeans, growth of the soybean-processing industry, soybean oil production, trade, and utilization, production and utilization of soybean oil foots (the residue from refining), soybean meal and other soybean protein products (incl. soybean flour, soybean glue, and other industrial soybean products). 5. Minor world areas.

Tables: (2) Soybean production in leading countries and estimated world total, 1922-1948. Statistics are given for China (excluding Manchuria), Manchuria, Korea, Japan, Formosa [Taiwan], Netherlands Indies [Dutch East Indies, later Indonesia], United States, Canada (1936 on), USSR (1928-1938), 5 Danubian countries (Austria, Yugoslavia, Hungary, Rumania, and Bulgaria, 1934 on, partly estimated by author).

(3) Net exports or imports of soybeans (million bushels) by major exporting and importing countries, 1909-1913 and 1922-1948. China and Manchuria (combined) dominate world soybean exports from 1910 to 1940, with the peak year being 1929 (100 million bushels) and with more than 50 million bushels being exported every year from 1926 to 1939. But by 1941 exports as fallen to almost zero. The only other exporter was the USA, which had its first net soybean exports in 1932 (4.2 million bu); this rose to a peak of 10.5 million bu in 1939 then dropped to almost zero during World War II. Europe was the largest a net importer of soybeans from 1910 to 1948; the peak years were 1929 and 1933, when 62.6 million bushels were imported. Japan was the second largest net importer of soybeans from 1910 to 1948; the peak year was 1938, when 29.8 million bushels were imported.

(4) Net exports or imports of soybean oil (million pounds) by major exporting and importing countries, 1909-1913 and 1922-1948. (5) Net exports or imports of soybean cake and meal (thousands of metric tons) by major exporting and importing countries, 1929-1948. (6) Net exports or imports of soybean oil and soybean in terms of oil (million pounds) by major exporting and importing countries, 1909-1913, 1922-1948.

(7) Net exports or imports of soybean cake and meal and soybeans in terms of meal (thousands of metric tons) by major exporting and importing countries, 1929-1948. (8) Apparent consumption of soybean oil and soybean cake and meal by principal European countries, 1929-1938 (based on tables 3-7). (9) Soybean acreage grown in the United States for all purposes (equivalent solid acreage), by states and groups of states, 1924-1948 (1,000 acres).

(10) Soybean acreage harvested for beans in the United States, 1924-1948 (1,000 acres). (11) Soybean production in the United States, by states and groups of states, 1924-1948 (1,000 bushels). (12) Soybean supply and disposition in the United States, 1924-1948 (1,000 bushels).

(13) Acreage and production of soybeans, soybeans processed for oil and meal, and soybean oil produced in the United States, 1924-1948. (14) Soybean oil production, trade, (imports and exports), stocks (crude basis), and domestic disappearance in the United States, 1910-1948 (1,000 pounds; compiled from reports of the Bureau of the Census). (15) Soybean oil utilization by classes of products in the United States, 1931-1948. Food products: Margarine, shortening, other, total. Nonfood products: Soap, paint and varnish, other drying oil products, miscellaneous non-food products, loss, incl. oil in foots, total. Total domestic disappearance. One table is in 1,000 lb.; a 2nd is in per cent of total.

(16) Supply and utilization of soybean protein products (meal basis) in the United States, 1921-1947 (1,000 metric tons). For each year is given: Estimated production, imports or soybean cake and meal, total supply, exports of soybean cake and meal. Domestic utilization in: Full-fat soybean flour, low- and medium-fat soybean flour, soybean glue for softwood plywood, soybean glue for hardwood plywood, other uses (largely feed for livestock).

A map (p. 90) shows soybeans harvested for beans in the USA, 1944. Each dot represents 2,000 acres.

A graph (p. 105) shows tonnage of high-protein feeds fed to livestock, 1926-1947. Within this are four graphs for: Soybean cake and meal, other oilseed cake and meal (mostly cottonseed), tankage and meat scraps, fish meal, dried milk products, gluten feed and meal, and (beginning 1935) brewers' and distillers' dried grains, and total.

A graph (p. 66) shows world soybean production from 1922 to 1949. The data is from Table 2. Within this are graphs for USA and for East Asia (incl. China, Manchuria, Korea, and Japan).

One bar chart (p. 73) shows domestic consumption and net exports of soybeans and soybean oil, in terms of oil (million lb.), by principal consuming countries, annual average, 1929-1938 (Based on tables 2-4. Oil equivalent of soybeans calculated at 8.4 pounds per bushel). By far the biggest consumer is China. By far the biggest exporter is Manchuria. Others: Japan, Germany, United States, Korea, Netherlands Indies, United Kingdom, Netherlands, Denmark, Other Europe (except U.S.S.R.).

Another bar chart (p. 74) shows domestic consumption and net exports of soybeans and soybean meal, in terms of meal (1,000 metric tons), by principal consuming countries, annual average, 1929-1938 (Based on tables 2, 3, 5, and 7. Meal equivalent of soybeans calculated at the rate of 0.02117 metric tons per bushel). The biggest consumer is China, followed by Japan. By far the biggest exporter is Manchuria. Other small exporters: Germany, United States, Korea, Formosa, Netherlands Indies, Denmark, United Kingdom, Other Europe (except U.S.S.R.). Address: Bureau of Agricultural Economics, USDA, Washington, DC.

694. Morse, W.J. 1950. History of soybean production: 5. World distribution (Document part). In: K.S. Markley, ed. 1950. Soybeans and Soybean Products. Vol. I. New York: Interscience Publishers or John Wiley & Sons. xvi + 1145 p. See p. 10-14.

• ***Summary:*** "The production of soybeans, which for many centuries was confined to the countries of Asia, spread rapidly after World War I to the western world, and since World War II practically all leading nations have become

more and more interested in the culture and production of the crop. Agricultural experiment stations throughout the world have become engaged in the development of varieties suited to their soil and climatic conditions through introduction, selection, and hybridization. Successful results have been obtained in many countries and, in a few, acreage and production have increased to the extent that the crop has become an important factor in that nation's agriculture. This is especially true of the United States, Netherland Indies, Rumania, U.S.S.R., Austria, Bulgaria, and Poland.

"The principal zones of soybean production in the Orient are China, Manchuria, Korea, and Japan. In Manchuria, the soybean occupies about 25% of the total cultivated area and is a dominating factor in the economic life of the country. As a cash crop it provides fully half the farm income in the north and more than half the total volume of freight handled by the railroads. It is estimated that from one- to two-thirds of the production of soy beans is exported; 15 to 20% is utilized for food, feed, and planting, and the remainder is used for oil extraction.

"In China, the soybean is one of the principal and most ancient of crops, ranking fifth in extent of culture and occupying about 9% of the total cultivated area. Although grown everywhere in China, about 60% of the soybean acreage is confined to three northern provinces, Shantung, Kiangsu, and Honan. China consumes practically all of her production, estimates indicating more than 50% for food, 27% for oil extraction and other purposes, 10% for stock feed, and 8% for planting.

"Korea occupies third place among the soybean-producing countries of Asia. Acreage and production are confined largely to central and northern Korea, as southern Korea, which grows principally cotton and rice, seems to be less suited to the successful production of soybeans. The entire Korean production is used for food, stock feed, planting and export, and none is used for oil extraction.

"Japan, although a large producer of soybeans, has consumed all her production and has imported large quantities from Manchuria and Korea. Acreage and production of soybeans in Japan have decreased since World War I and greater emphasis has been placed on increased production of rice. The proportions of soybeans used by Japan for various purposes are: 'miso' (soybean-rice fermented paste), 22%; soy sauce, 22%; oil and oil cake, 21.5%; soybean curd [tofu], 15.5%; confections, 7.2%; forage, 6.2%; green manure, 2.5%; seed, 1.8%; green vegetable beans, 0.8%; and miscellaneous, 0.5%.

"In the Soviet Far East, the soybean is said to be one of the chief industrial crops and in some districts constitutes 20% of the cultivated area. Acreage and production have increased markedly since 1926, especially in Khabarovsk territory, the largest seed-producing area.

"South of China, the soybean is cultivated to some extent in the Netherland Indies, India, Siam, Cochin China, Philippines, and Australia. Until 1932, the production of soybeans in the Netherland Indies was not sufficient to meet the domestic demand. Since then, acreage and production have gradually increased until soybeans began to be exported to Holland about 1936. The soybean has been widely cultivated for a long time by the natives of the hilly regions from the borders of Afghanistan eastward to Burma, to northern Siam, and French Indo-China. The crop in India has been grown for its forage and food value rather than for commerce. Although successful results have been obtained in some of the provinces with varieties of good oil content, the growing of the crop as an oil seed does not appear to have been popular with the native farmers. In Australia successful results with American varieties have greatly increased acreage and production, especially in the states of Queensland, New South Wales, and Victoria.

"Although attempts to grow soybeans in European countries have extended over many years, it is only within the past few years that there has been any appreciable production. At present, production is confined largely to European U.S.S.R., Bulgaria, Yugoslavia, Austria, Rumania, and Czechoslovakia, production being largest in Rumania, Bulgaria, and Yugoslavia. In the development of adapted varieties, some progress has been made in Sweden, Poland, Netherlands, and Hungary. Because of the economic importance of the soybean, scientists of the U.S.S.R. have carried on extensive experiments with it, especially in the development of adapted varieties and utilization. At present, the principal areas of production are Ukraine, Moldavia, and certain regions in the North Caucasus.

"Experiments have been conducted with the soybean in nearly all regions of Africa but as yet it is an unfamiliar crop to the majority of African farmer. It has been grown successfully in the upland, midlands, and coastal districts of Natal [South Africa] and throughout Gambia, Nigeria, Egypt, the Gold Coast Colony, and also in the corn- and cotton-growing districts of the Belgian Congo.

"Although the soybean has been the subject of considerable experimental work in practically all countries of the Americas, little progress has been made in commercial culture except in the United States and Canada."

Note: This is the earliest document seen (Dec. 2007) that clearly refers to soybeans in Afghanistan, or the cultivation of soybeans in Afghanistan. This document contains the earliest clear date seen for soybeans in Afghanistan, or the cultivation of soybeans in Afghanistan (long before 1950). The source of these soybeans is unknown. Address: 6809 Fifth St. N.W., Washington, DC; formerly Principal Agronomist, Div. of Forage Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, USDA, Beltsville, Maryland.

695. *Proceedings of the Indiana Academy of Science.*1950. Necrology: Alfred Theodor Wiancko [obituary]. 60:26-28.
• ***Summary:*** 1872 Oct. 16–Born on a farm near Sparrow Lake, Ontario, Canada; he spent his boyhood and early manhood years there. 1895–Graduated from Ontario Agricultural College (OAC) with a B.S. degree in agriculture. Then for several years he managed a large farm in Minnesota. 1898–Returned to OAC as assistant librarian and instructor in German.

1901–He became experimentalist on the 12,000 acre farm of the Standard Cattle Company in Nebraska. 1901 Oct.–He accepted a position at the Univ. of Nebraska as instructor in Agriculture and Assistant Agriculturist in its Experiment Station. 1903–Moved to Purdue University as Associate Prof. of Agriculture. 1904–He "started the systematic breeding of small grains and developed several new varieties of wheat and soy beans especially adapted to Indiana soil." 1905–He is made head of the newly formed Department of Soils and Crops. From 1905 to 1907 he had charge of the first instructional work at Purdue in Farm Management, Agricultural Engineering, Agricultural Chemistry, and Agricultural Botany. The Deportment of Soils and Crops eventually became the Dep. of Agronomy with Prof. Wiancko as Chief.

1916–He relinquished his teaching duties and thereafter devoted his time to experimental and research work. 1943–Retired as Prof. Emeritus of Agronomy after having served Purdue University for 40 years. His main contributions were related to corn, soils, and fertilizers. 1949 Dec. 10–Died at Eustis, Florida.

696. Crampton, Earle W.; Farmer, F.A.; Berryhill, F.M. 1951. The effect of heat treatment on the nutritional value of some vegetable oils. *J. of Nutrition* 43(3):431-40. March 10. [9 ref]
• ***Summary:*** The authors reported a marked decrease in weight gains per 1,000 calories of food ingested in the case of rats fed oils (including soybean oil) which had been heated ("heat-polymerized") at 275ºC. The most marked decrease was noted for peanut oil; the gain decreased from 87 grams per 1,000 calories for the unheated oil to 30 for the oil heated for 30 hours. Vegetable oils subjected to severe heat treatment have been reported to cause cancer.

"The soybean oil was prepared and contributed through the courtesy of Dr. W.D. McFarlane, Canadian Breweries, whose personal interest in these studies has been of much help." Note 1. This is the earliest document seen (Sept. 2001) that concerns diet and cancer, and that mentions a soy product (overheated soybean oil). Address: Dep. of Nutrition, Macdonald College, McGill Univ., Province of Quebec, Canada.

697. American Soybean Association. 1951. Soybean Blue Book. Hudson, Iowa: American Soybean Assoc. 144 p. Advertisers' index. 22 cm.
• ***Summary:*** Canada: Added to the table of oil and cake production (p. 33) is a new column showing bushels of soybeans crushed each year. They increased from 981,000 bushels in 1945 to 4.5 million bushels in 1949. Address: Hudson, Iowa.

698. *Soybean Blue Book.*1951. Ontario associations. p. 11.
• ***Summary:*** *"Ontario Soya Bean Marketing Committee.* H. Pugh, Chatham, Ontario, chairman. K.A. Standing, Essex, Ontario, Essex County agricultural representative, Essex, Ontario, secretary. Purpose, to promote the soybean industry in Ontario and to regulate marketing. The Ontario marketing board is selected from this committee.

*"Ontario Soybean Committee.* G.P. McRostie, field husbandry department, Ontario Agricultural College, Guelph, Ontario, chairman; and George F. Jones, field husbandry department, Ontario Agricultural College, Guelph, Ontario, secretary.

"Sponsored by the Ontario Department of Agriculture."

Note: This is the earliest document seen (Jan. 2010) in the *Soybean Blue Book* concerning an organization related to soybeans in Ontario or Canada.

699. *Soybean Digest.*1951. Hold first Ontario soybean convention. March. p. 28.
• ***Summary:*** "The first annual Ontario Soybean Convention held at Chatham, Ontario Feb. 15 and 16, was a big success; as a result its sponsors plan to make it an annual affair.

"About 400 soybean growers, processors and others attended the event. Sponsors were Canadian processors, the Ontario Elevator Association, the Ontario Soybean Marketing Board and the Farm Products Marketing Board of Toronto.

"The Ontario soybean growers, concentrated in Essex and Kent Counties, were told that they should at least double the 3 million crop they grew in 1950, by Harry Pugh, chairman of the Ontario Soybean Marketing Board. He suggested that the growing area could be extended further north and east with earlier maturing varieties."

"The problems of marketing and storage of soybeans were also discussed by Geo. M. Strayer, secretary-treasurer of the American Soybean Association, who was on the program.

"New varieties should be available soon with a higher oil yield, C.E. Jones, field husbandry department, Ontario Agricultural College, told the group. Jones said Mandarins are proving to be the highest yielders of oil." Other promising varieties are Blackhawk, Monroe, and Hawkeye.

"The film, Soybeans, the Feature Story, was shown twice during the meeting."

"Other speakers included: Dr. F. Dimmock, Dominion Department of Agriculture, Ottawa; C.W. Owen, Dominion Experimental Farm, Harrow; Dr. S.J. Slinger, poultry

department, Ontario Agricultural College, Guelph; Don McLachlin, Tupperville, Ontario; Gillis De Putter, Appin, Ontario; and James Ferris, sales manager, Ford of Canada."

Note: This is the earliest document seen (Feb. 2000) that mentions the "Ontario Soybean Marketing Board." The name, written exactly like this, is mentioned twice.

700. Victory Mills, Limited. 1951. Vegetable oils, oilmeals, soybean flours, malt sprouts, brewer's-malt, dried yeast, dried grains (Ad). *Soybean Blue Book* p. 80.
• ***Summary:*** This ½-page ad shows a large illustration of the Victory Mills plant with a tanker nearby on the water. Address: Head office and plant: 285 Fleet St. East, Toronto; Montreal office: Big Royal Bank Bldg., Montreal.

701. *Toronto Daily Star (Canada).*1951. Dominion Linseed in merger scheme. Oct. 25. p. 24.
• ***Summary:*** "Bondholders of Dominion Linseed Oil Co. at a meeting on Nov. 14 are to consider a proposal for reorganization involving the acquisition by Dominion Linseed Oil Co. of McArthur, Irwin Ltd. and Hart Battery Co."

Describes the mechanics of the proposal. "The reason for the proposal is the continued unsatisfactory operations of Dominion Linseed Oil. During the past year the company had a deficit of approximately $100,000 bringing the accumulated deficit for the past four years to more than $1,000,000." "As of June 30 last, Dominion had bank loans of $1,475,000 and a working capital deficit of $659,000."

702. Brock, F.H. 1951. Soy flours improve quality of many bakery products. *Canadian Baker* 64:36. Oct.
• ***Summary:*** The first commercial soy flour was developed in 1926 and was sold as "Health Flour." Address: Foods Chemist, A.E. Staley Mfg. Co., Decatur, Illinois.

703. Mining, Metallurgical and Chemical Section, Industry and Merchandising Division, Dominion Bureau of Statistics, Department of Trade and Commerce, Canada. 1951. The vegetable oils industry 1950. Ottawa, ONT, Canada. Vol. 2–Part XVIII–p. J-1 to J-8. Oct. 13.
• ***Summary:*** Ontario province is Canada's leading producer of vegetable oils. The leading oilseed, in terms of value at the mill, is flaxseed ($18.5 million) used to make linseed oil and meal, followed by soya beans ($14.4 million). Most of the soya bean oil in Canada is processed by companies in the slaughtering and meat packing industry to make shortening, etc. Other major uses are in fish packing (5.5%), paints (3.3% of total), and miscellaneous foods (3.2%). In 1950 Canadian imports included $878,794 worth of edible soya bean oil and $627,095 of non-edible soya bean oil, $1,265,296 of soya bean oilcake and oilcake meal, and $269,120 of soya bean flour. Page J-8 gives a "Directory of Canadian firms in the vegetable oils industry, 1950," including: (1) Victory Soya Mills at 285 Fleet St. E., Toronto. (2) Toronto Elevators, Limited (Oil Crushing Division), Queens Quay, Toronto. (3) Edible Oils Limited, Fort William. Address: Ottawa, ONT, Canada.

704. *Soybean Digest.*1951. Solvent plant by Toronto Elevators. Oct. p. 35.
• ***Summary:*** Toronto Elevators Ltd. is constructing a $1 million solvent plant for extraction of vegetable oils on the Toronto waterfront, according to an announcement by H.E. Bryant, manager of the vegetable oils department. The plant, which will be used primarily for soybean oil extraction, is the most modern of its kind in Canada, incorporating a number of processing features new in Canada.

A pioneer in Canada's soybean crushing industry, Toronto Elevators Ltd. has been actively engaged in this field since 1938.

Located near the company's grain elevators, master feed plant, and vegetable oils refinery, the new plant is expected to be in operation by about the end of 1951. The crude soybean oil will be pumped to the refinery for processing to meet the requirements of the paint industry. The new solvent plant will also produce edible oils.

The present expeller plant operated by Toronto Elevators Ltd. will be continued in use for crushing flaxseed.

705. Hildebrand, A.A.; Koch, L.W. 1951. A study of systemic infection by downy mildew of soybean with special reference to symptomology, economic significance and control. *Scientific Agriculture (Ottawa)* 31:505-18. [27 ref]*
Address: Dominion Plant Pathology Lab., Harrow, Ontario, Canada.

706. Lips, H.J.; Grace, N.H.; Ziegler, J.A. 1952. Processing procedure and flavor stability in soybean oil. *Canadian J. of Technology* 30(1):1-8. Jan. [9 ref]
• ***Summary:*** "Chemical and physical measurements and small scale taste panel tests on laboratory refined American and Canadian solvent extracted soybean oils indicated that their quality was generally similar. Flavor stability was not improved by deodorization in the presence of citric acid, increased deodorization time, treatment with activated magnesia, preliminary treatment with concentrated hydrochloric acid, or by refining in miscella with or without subsequent addition of butylated hydroxyanisole." Address: 1-2. Biochemists, National Research Laboratories, Ottawa, Canada; 2. Biochemist, Victory Mills Ltd. Research Inst., Toronto, ONT, Canada.

707. *Soybean Digest.*1952. Ontario convention. Feb. p. 33.

• ***Summary:*** "The second annual Ontario Soybean Convention will be held at the Pyranon Ballroom in Chatham, Ontario [Canada], Feb. 20, beginning at 10 a.m.

"Reports of experiments and research on soybeans at the different experiment stations will be given by A. W. Owens, Harrow Experimental Station; Dr. F. Dimmock, Department of Agriculture, Ottawa; George Jones, Ontario Agricultural College, Guelph; Ken Murphey, Victory Mills, Ltd.; and Dr. A. A. Hildebrand, Experimental Station, Harrow.

"Geo. M. Strayer, editor of the *Soybean Digest* and secretary of the American Soybean Association, will be guest speaker at the noon banquet."

708. McCloud, J.L. 1952. Reminiscences: The plastic automobile body, Robert Boyer's major accomplishments, and solvent extractors (Document part). Dearborn, Michigan: Ford Motor Company Archives, Oral History Section. 423 p. See p. 152-62. Unpublished manuscript. 28 cm. Courtesy of Henry Ford Museum & Greenfield Village Archives. Acc. 65.

• ***Summary:*** The idea of a plastic car or plastic parts that were made from soybeans was a natural outgrowth of Henry Ford's interest in chemurgy and Robert Boyer's research in that area. "Actually I think that the statement that this plastic automobile body, which was eventually built, had anything to do with soybeans was a complete misnomer. It was a plastic body, but the plastic wasn't made from soybeans. It was a phenolic plastic and reinforced. Mr. Boyer, in Dearborn, developed a combination of phenolic and protein plastic. Protein plastics are not new...

"The plastic that Boyer is credited with having started and which we equipped the Glass plant to make, and made in quite a substantial volume, actually was a phenolic plastic in which some of the soybean protein just replaced some of the filler, such as wood or asbestos fiber. We used to kid Mr. Boyer and I used to kid Hud McCarroll about it, that all they did was to raise sawdust on bean vines in order to use up the product of the bean vine. It annoyed Hud but he knew damn well that that was about all they succeeded in doing.

"Of course, the fact is it didn't continue because it just wasn't economical. Furthermore, while it was perfectly successful for the part, you can't keep on pulling yourself up by your bootstraps and paying more money than you can buy it, so the manufacture of plastics was discontinued...

"The plastic body that was produced, however, was a phenolic plastic. The only soybean that got anywhere near it was soybean oil that was used to paint it, and the only reason that it was painted was because it was never possible to put the plastic body together in such a good way that it had a good finish without painting it. Consequently the plastic body which was made actually was painted and as all automobile bodies were then and now painted with soybean oil paint...

"I would say that the first big thing that Mr. Boyer did was this development of a combination of a phenolic plastic with a protein plastic which we used for quite a little while and successfully in electrical insulation parts such as the distributor and so on. That was very good. The only trouble was that it wasn't economical.

"The other thing was the actual production of protein fibers. Of course, there was little poetic license in that, because Mr. Boyer never succeeded in Dearborn in purifying protein produced around here to the extent that it was possible to spin and make fibers. He actually had to buy the purified protein from some other people [Note: Boyer probably bought Alysol brand industrial soy protein from The Drackett Co., at least during the early 1940s]. That was a step that was blithely jumped. Mr. Ford undoubtedly realized this. He felt that that was a detail or hurdle that could have been overcome. Probably the answer is correct. It probably could have been overcome if Mr. Boyer had a little more time.

"The third thing that I would say that Mr. Boyer did was the making of a continuous percolator or extractor. Several of them were built in Dearborn. I think some of them are actually running now."

Concerning the solvent extractor, there existed a type of roller press used in the oil extraction industry that was better than one press designed by Ford and Boyer. "Mr. Ford wouldn't let Boyer buy one of these because he wanted to make his own, and for that reason it [the extraction system] wasn't as successful as it ought to have been, but he just wouldn't accept such a combination... The Rouge extractor was eventually sold to a Canadian company. One of the men who worked under Mr. Boyer who remained here and had charge of this extractor after Mr. Boyer left went along with the sale of this outfit to the Canadian company, and to the best of my knowledge the Canadian company uses this extractor, and this man is in charge of it."

The soybean solvent extractor at Milan had the advantage of railroad access, so you could bring in soybeans by rail and send out the oil and meal by rail. But a study indicated that the soybean operations at Milan were not very successful economically, so the equipment was moved to Saline. In Saline it had two other handicaps. First there was no railroad access, so all soybeans had to be brought in by farm wagon and the product sent out by truck. Second the soybeans could not be purchased at the best times for the best prices because of insufficient soybean storage silo facilities. "They had to buy from hand to mouth in Saline." In addition they had no equipment to process the oil to produce a non-break oil, the type Ford used in making varnished.

"Mr. Ford's interest in the extraction of oil from soybeans for developing a cash crop was lost before he

retired from the Company. He lost interest in it in the beginning of World War II, when his attempt to get the Government backing failed. From that time on there was never any evidence of Mr. Ford's personal backing of the soybean business, including oil.

"I would say that Mr. Ford thought the plastic car was just a stunt and that it had been proven, but from this point on it would depend upon whether or not anybody wants to take it up enough to successfully make it. He had no idea of setting up a small pilot plant of his own to produce that plastic car. I would say that he gave Mr. Boyer a terrific backing for a while, even to the annoyance of a good many people in the Company by actually diverting and earmarking presses in the Dearborn Tool and Die plant that were brought in for some other purpose to work on this plastic car job. It just stymied some other work in the Ford Motor Company. Unless Mr. Ford saw to it continuously that Mr. Boyer did get the backing for the job of making the plastic car, Mr. Boyer wouldn't get it.

"There was a very definite break in the relationship between Mr. Boyer and Mr. Ford. I didn't know any of the circumstances except that Mr. Boyer seemed to get going along and was riding quite high...

"It was progressing along at a pretty good clip, and when it was obvious that the Government wasn't going to give Mr. Ford backing on the thing, Mr. Boyer was given his walking papers. Who Mr. Ford delegated to do this, I don't know. We just got word that Mr. Boyer was out. I saw Mr. Boyer and he told me he was going to leave.

"About that time one man who was a pretty capable man and had been working under Mr. Boyer was up here. He was working for The Drackett Company in Cincinnati [Ohio] and was supplying Mr. Boyer with purified protein which Mr. Boyer was using to make the protein fibers. He had tried to lure Boyer away from the Ford Motor Company.

"Mr. Boyer had considered that he was going very well in the Ford Motor Company, so he wanted to stay. When it looked like he was slipping, Mr. Boyer immediately said that he would reconsider what he had told him and that he would go with The Drackett Company.

"The Drackett Company offered to buy practically all the equipment that Mr. Boyer had for making soybean fibers, and anything that Mr. Boyer said goes with the making of soybean fibers just went. We didn't save much of anything except some laboratory benches. Drackett got just about everything they wanted in that respect from the Dearborn setup."

709. *Soybean Digest.*1952. Second Ontario convention is held. March. p. 28.
• ***Summary:*** "A capacity crowd of about 350 persons attended the second annual Ontario Soybean Convention held in Chatham [Ontario, Canada] Feb. 20. The convention was sponsored by the Ontario Soybean Marketing Board and the Farm Products Marketing Board of Ontario. Harry Pugh, Chatham, chairman of the Ontario Soybean Marketing Board, served as chairman of the meetings, and was in charge of arrangements, assisted by Ken Standing, Essex, secretary of the board." Details on the morning program, banquet, and afternoon program are given. George M. Strayer, secretary of the American Soybean Association and editor of *Soybean Digest,* gave a talk at the banquet on "The Trend of Soybean Prices."

"The afternoon program consisted of a presentation on soybean production and culture by Ivan Roberts, head of the agronomy work for Victory Mills, Ltd., and a discussion of the industrial uses of soybeans and soybean products by Dr. Parker, head of the Victory Mills laboratory at Toronto."

710. Clandinin, D.R.; Robblee, A.R. 1952. The effect of processing on the enzymatic liberation of lysine and arginine from soybean oil meal. *J. of Nutrition* 46(4):525-30. April. [5 ref]
• ***Summary:*** Conclusions: "1. Amino acid or alpha-amino-nitrogen values obtained subsequent to *in vitro* enzymatic hydrolysis do not necessarily constitute a reliable index of the relative nutritive value of soybean oil meals processed for varying periods of time under the same or under different autoclave conditions. 2. Maximum values at any one autoclave processing temperature would, however, characterize a good meal." Address: Poultry Div., Univ. of Alberta, Edmonton, ALB, Canada.

711. Dimmock, F. 1952. Soybean improvement at Ottawa. *Soybean Digest.* April. p. 14-15.
• ***Summary:*** "The soybean breeding program which was begun in 1929 at the Central Experimental Farm, Ottawa, Ontario, Canada, has resulted in the development and release of four varieties, namely Pagoda, Kabott, Capital and Mandarin (Ottawa strain). These varieties have had a wide distribution, not only in Canada, but also in certain areas of the United States where they have been highly recommended... There is only one other experiment station engaged in soybean breeding work in Canada. It is located at Harrow, Ontario... The main emphasis at present is being placed on a rather extensive program of hybridization between selected varieties and strains... We are particularly interested in securing an early, productive variety for eastern Ontario... During the past few years, more and more attention has been directed towards disease resistance." Address: Div. of Forage Plants, Central Experimental Farm, Ottawa, ONT, Canada.

712. *Toronto Daily Star (Canada).*1952. Victory Mills Limited appointments (Photo caption). Aug. 27. p. 18.
• ***Summary:*** Four portrait photos show four men (left to right) in the order listed below.

The lower caption reads: "E.P. Taylor, Chairman of the Board of Canadian Breweries Limited, announces the following executive appointment at its Soybean and Malt processing subsidiary, Victory Mills Limited: (1) J.G. Campbell, C.A., President. (2) J.C. Henderson, Vice-President, Sales. (3) A.R. Gillespie, Vice-President, Purchasing. (4) G. Abrams, C.A., Vice-President and Treasurer."

713. Victory Mills, Ltd. 1952. Veeline: Serving agriculture and industry (Ad). *Soybean Blue Book.* p. 101.
• ***Summary:*** "Victory Mills operate the largest vegetable oil extraction plant and the most modern malt plant in Canada. Victory Mills Products are as follows: vegetable oil and oil meals, brewers' malt, soybean flours, brewers' dried yeast, malt sprouts, brewers' dried grain."

A similar ad appears in *Soybean Digest* (Sept. 1953, p. 70) except that several additional products are listed: Brewers' dried grains, malting barley by-products, and 50% protein soybean oil meal.

Note: Another ad for the same (1953) Veeline products appears in *Soybean Digest*, Sept. 1954, p. 56. Veeline is the company's registered trademark. Address: Head Office and Plant: 285 Fleet St. East, Toronto, Ontario, Canada.

714. *Soybean Digest.*1952. Grits and flakes... from the world of soy: Canadian executives. Oct. p. 30.
• ***Summary:*** "E.P. Taylor, chairman of the board of Canadian Breweries Ltd., announces the following executive appointments at the soybean and malt processing subsidiary, Victory Mills, Ltd.: J.G. Campbell, C.A., president; J.C. Henderson, vice president, sales; A.R. Gillespie, vice president, purchasing; G. Abrams, C.A., vice president and treasurer." A portrait photo shows J.G. Campbell.

715. Packman, D.J. 1952. Soybean production on Ontario farms. *Economic Annalist (The)* 22(6):131-37. Dec. Reproduced in 1953 as part 1 of a 15-page booklet titled *Soybeans* by Dept. of Agriculture, Ottawa, Canada. of Agric. [4 ref]
• ***Summary:*** Contents: Introduction. Changes in land use. The soybean enterprise. Farm organization. Labour returns from soybeans. Cultural practices. Sales of soybeans. Outlook.

"The acreage sown to soybeans in Canada has increased from about 44,000 acres in 1942 to 155,000 acres in 1951." Table 1 shows that in 1951 about 40.5% of the soybean acreage in Ontario province was found in Essex County and 38.9% in Kent County. "In Essex County, for example, the farm value of soybeans constitutes 17 per cent of the total gross value of field crops, and is exceeded only by corn and potatoes. In Kent County, soybeans rank third after corn and winter wheat and provide approximately 14 per cent of the total gross value of field crops." Address: Canada.

716. Porteous, W.L. 1952. Utilization and prices of soybeans in Canada. *Economic Annalist (The)* 22(6):125-31. Dec. Reproduced in 1953 as part 2 of a 15-page booklet titled *Soybeans* by Dept. of Agriculture, Ottawa, Canada. [1 footnote]
• ***Summary:*** Contents: Introduction. Domestic crushings of soybeans. Domestic crushings in relation to production. Foreign trade in soybeans and soybean products. Tariffs on soybeans and soybean products. Comparison of the market for soybean oil and oilcake and meal (1946 and 1951). Domestic uses for soybean oil. Domestic uses for soybean oilcake and meal. Total domestic disappearance of soybean oil oilcake and meal. Prices for soybeans. Prices for soybean oil. Soybean oilmeal prices. Processors' margins and transportation charges. Seasonal pattern of soybean prices. "The Ontario Soya-Bean Growers' Marketing Scheme."

The section titled "Domestic uses for soybean oil" (p. 128) states: "Between 1920 and 1930 almost all of the soybean oil used in Canada (about 1,500 tons per year) was used for making soaps and paints; about 90 per cent was used for soap and 10 per cent for paints. During the next decade the pattern of utilization began to shift and soybean oil was used more widely as an edible oil; about 35 per cent went to food uses and 65 per cent was used to make soaps and paints. This trend was accelerated during World War II. At present most of the oil is used by various food processing industries. Margarine and shortening accounted for 79.5 per cent of the total utilization in 1950 and 71.1 per cent in 1951 (Table 6). Industrial use is mainly for paints and varnishes."

The section titled "The Ontario Soya-Bean Growers' Marketing Scheme" (p. 130) states: "This organization, established in 1949 under the 'Farm Products Marketing Act' of Ontario, negotiates an agreement annually or as often as necessary with the processors and dealers regarding the conditions of sale of Ontario soybeans. Under the 1951 agreement no fixed or contract price for soybeans was established.

"In drawing up the agreement, six representatives of the producers meet with three processors and three dealers' representatives. The agreement reached by these groups is submitted to and must be approved by the Farm Products Marketing Board. No buyer may do business on terms below those set out in the agreement.

"Under the 1951 agreement the minimum price was the trading price for each day as established on an open market basis. However, the processors undertook to pay the best possible prices consistent with the prevailing market prices obtainable for the end products of processing. In addition processors were to inform the Marketing Board as to the

causes of major price fluctuations and co-operate in providing information relative to prices based on the previous day's trading price.

"The agreement specified the discounts to be imposed on soybeans containing over 14 per cent moisture. Soybeans containing over 14 per cent and up to 18 per cent (inclusive) moisture were to be discounted with the maximum rate being 1½ cents per bushel for each ½ per cent of moisture content.

"The maximum charge to any grower by every dealer for cleaning, handling and selling soybeans was fixed at ten cents per bushel under the 1951 agreement. The maximum storage charge to any grower was 1/30 of one cent per bushel per day.

"The agreement stipulates that dealers are to pay cash on demand for soybeans and procure specific information about the conditions of sale such as the date of sale, condition of the soybeans, weight and prices paid. The name of the purchaser, the name and address of the grower, date of purchase and the number of bushels sold is to be forwarded to the Secretary of the local Board by the 15th of the following month. The agreement also stipulates that matters of dispute between the growers and a dealer as to grade and moisture content are to be referred to an Inspector of the Board of Grain Commissioners at Chatham, Ontario, and his decision is to be final."

Note: This is the earliest document seen (Feb. 2000) that mentions "The Ontario Soya-Bean Growers' Marketing Scheme."

Tables show: (1) "Soybean crushings and production of soybean oil, cake and meal, 1946 to 1951." The number of soybean bushels crushed in Canada grew from 1,846,000 in 1946, to 2,702,000 in 1947, to 4,508,000 in 1949, to a record 7,483,000 in 1951. Soybean oil production grew from 9,101 tons in 1946, to 13,536 tons in 1947, to 22,982 tons in 1949, to a record 36,757 tons in 1951. Soybean oilcake and meal production grew from 42,712 tons in 1946, to 62,975 tons in 1947, to 105,314 tons in 1949, to a record 177,982 tons in 1951.

(2) "Canadian supplies of soybeans in relation to total crushed, 1946 to 1951. Soybean imports grew from 1,136,000 bushels in 1946 to 4,659,000 in 1951. During this period Canadian supplies accounted for about 42% of the total crushed (range: 29.1% to 58.3%).

(3) "Production, trade, and apparent domestic disappearance of soybean oilcake and meal, 1946-51." (4) "Production, trade, and apparent domestic disappearance of soybean oil, 1946-51." (6) "Soybean oil used in margarine and shortening and total disappearance, 1950-51." In 1950 some 9,040 tons of soybean oil were used in margarine and 16,943 tons in shortening for a total of 26,037 tons (refined basis). In 1951 some 17,599 tons of soybean oil were used in margarine and 15,368 tons in shortening for a total of 32,967 tons (refined basis). Address: Canada.

717. *Department of Agriculture, Annual Conference of Manitoba Agronomists (Canada).*1952. Soybean varieties. 63 p. For the year 1952. See p. 16. *
• ***Summary:*** The section on soybean varieties (p. 16) states that four selections from Pagoda have shown promise.

718. Goldberg, Ray A. 1952. The soybean industry: With special reference to the competitive position of the Minnesota producer and processor. Minneapolis, MN: The University of Minnesota Press. xv + 186 p. Index. 24 cm. [156 ref]
• ***Summary:*** Contents: 1. Introduction: Purpose and scope, source of data, procedure. 2. Production: World production, national production, acreage changes in the Corn Belt, Minnesota production, areas of production, suitable varieties, acreage changes in Minnesota, summary.

3. Utilization: World utilization, national utilization, soybean meal utilization, soybean oil utilization, world and national trade movements, price relations, shortening, margarine, other edible uses, industrial uses, Minnesota utilization, summary.

4. The processing industry: Marketing channels of the crop, historical evolution, the national processing industry, the Minnesota processing industry, technical development, processing costs, Minnesota processing costs, summary.

5. Factors affecting the competitive position of the Minnesota soybean processor: Transportation, Minnesota transportation, Buffalo–New York, Fargo–North Dakota, St. Cloud–Minnesota, Chicago soybean prices, qualifications, foreign market, summary, storage, commodity markets, price formulation, government action, the Minnesota processor, crushing margins, specific example, crushing-margin relationships over time.

6. Summary and conclusions: The producer, the processor. Appendixes. I. Tables. II. Interviews. Bibliography.

Although Minnesota was one of the last states to develop a soybean crop, the state now ranks 6th in total soybean production in America. In the decade from 1940 to 1950 the dollar value of the Minnesota soybean crop rose from $76,000 to $37,000,000.

Tables: (1) A comparison of the twelve leading soybean producing states for 1920 to 1950. (2) A summary of protein content, and iodine number of soybeans, by area, three-year averages, 1945-1947. (3) The results of tests on two groups of varieties of soybeans. (4) The averages for soybean varieties for date mature and oil content at three locations, Waseca, Blue Earth, and southwestern Minnesota. (5) Percentage changes in the use of land by forty-two Minnesota farmers, 1941 through 1945 (1940 = 100 per cent). (6) Changes in crop acreages between 1939 and 1949. (7) Index numbers (by percentage) of acreage on fifty southern Minnesota farms, 1941 through 1950 (1941 = 100

per cent). (8) Percentage of total tillable land in specific crops on fifty southern Minnesota farms, 1941 through 1950. (9) Tillable land and specified crops in Minnesota. (10) Percentage of total tillable land in specified crops in Minnesota. (11) The dollar value per acre of grain crops in Southern Minnesota. (12) The comparative cost and returns per acre for grain crops in southern Minnesota, 1945-1949. (13) The indicated frequency with which forty-seven selected farms produced soybeans, 1941-1950. (14) The number and percentage of fifty southern Minnesota farms producing soybeans. (15) Soybean acreage and soybean farms in Minnesota. (16) Canada: Soybeans crushed, soybean oil, cake and meal production, 1950, with comparisons. (17) Canada: Imports of soybeans, edible and inedible soybean oil, 1950, with comparisons. (18) The production and distribution of soybean meal by states, 1945. (19) The deficit in protein for all livestock, using requirements given in feed standards as the quantity needed, 1937 through 1949. (20) Prices paid by farmers per 100 pounds of cottonseed meal and soybean meal, by months, United States, 1950. (21) The production and processing of soybeans in Minnesota, Iowa, and Illinois. (22) Minnesota monthly production of soybean meal, October 1950 through September 1951, and monthly consumption of soybean meal, October 1945 through September 1946. (23) Marketing channels for soybeans, Illinois, 1947-1948 crop years, as a percentage of total sales off farms. (24) The relative costs of acquiring soybeans for large and small processing plants, Illinois, crop year 1948. (25) Soybean-processing plants in the United States, 1950. (26) The estimated soybean-processing capacities of the nine largest operators, May 1945 and January 1951. (27) The number of soybean plants in the United States on July 1, 1944 by size. (28) The number of soybean plants in the United States on January 1, 1951, by size. (29) Soybean mills in operation in Minnesota, October 1, 1945. (30) Soybean production in Minnesota, actual and potential, December 1951. (31) A summary of soybean-processing facilities and operation status, excluding mills crushing soybeans temporarily or less than half their operating time, United States, May 1945 and January 1951. (32) Soybean processing margin by size and type of plant, 1943-1944. (33) The processing costs of six Minnesota soybean plants, percentage breakdown and actual cents-per-bushel range, 1951. (34) The capacity of soybean mills in specified areas, excluding mills crushing soybeans temporarily or less than half their operating time, May 1945 and 1950. (35) The over-all freight advantages per ton of meal shipped, as used by commercial men for territories rather than specific locations. (36) Available storage space and estimated requirement for United States soybean mills, 1951-1952 crush. (37) Monthly sales of soybeans by farmers, as percentage of total sales, in ten soybean-producing states, marketing year, 1947-1948. (38) Soybean stocks on Minnesota farms, quarterly, 1943-1952, by thousand bushels. (39) Range of contract cash prices of soybeans at Chicago, monthly. (40) Range of contract cash prices of soybeans at Chicago, yearly. (41) Receipts of soybeans at Chicago and Minneapolis grain centers for the last five years. (42) Price supports, price ceilings, and average prices received by farmers for soybeans, crop years 1940-1951. (43) Country elevator base ceiling prices for No. 1 and No. 2 yellow and green soybeans. (44) Ceiling prices for crude soybean oil, in tank cars, in cents per pound. (45) Estimated differences in crushing margins among Illinois, Iowa, and Minnesota processing plants.

Appendix I tables: (1) Soybeans: Acreage, yield per acre, and production in specified countries, average 1935-1939, annual 1948-1950. (2) Soybeans: Exports from specified countries, average 1935-1939, annual 1947-1950. (3) Soybean oil: Exports from specified countries, average 1935-1939, annual 1947-1950. (4) Suez Canal: Northbound movement of Manchurian soybeans, December 1950–June 1951. (5) Soybeans: Acreage, yield, and production in the United States, 1924-1950. (6) Acreage of soybeans harvested for beans, United States and selected groups of states, averages 1925-1929, 1930-1934, and 1935-1939, and annually 1940-1950. (7) Soybeans: Supply and utilization in the United States, 1924-1950, by number of thousand bushels. (8) Acreage changes in the six leading soybean states. (9) Soybeans harvest for beans: Acreage, yield, and production for the ten leading states, 1945-1950. (10) Soybeans: Yield per acre, oil content, and oil yield per acre in the principal soybean-producing states, by states, 1944 and 1945. (11) Soybean oil content, temperature, and length of day in the principal soybean-producing states, May-October averages, 1944 and 1945. (12) Soybean oil meal and cake: Supply and utilization in the United States, 1924 through 1949, by number of thousand tons. (13) State-to-state movements of soybean meal in the six main meal-producing states, 1948, 1949, and 1950. (14) Protein concentrates: Estimated use for feed in the United States, prewar average and years 1944 through 1950, year beginning October 1, by number of thousand tons. (15) Relationships between the prices of soybean meal and prices of other high-protein feeds. (16) Soybean oil, crude basis: Production, trade, stocks December 31, and apparent disappearance, 1910–September 1950, by number of thousand pounds. (17) State-to-state movement of soybean oil, 1950. (18) Vegetable oils: Wholesale prices, in cents per pound, at specified markets, annual averages, 1930 through 1950. (19) Wholesale prices, in cents per pound, of leading fats and oils, United States, for specified periods. (20) State-to-state movements of soybeans. (21) The cost of the component parts of a 300-ton capacity, solvent extraction-plant. (22) The price per ton of shipping soybean meal from Decatur, Illinois, December 1951. (23) The average per-ton railroad freight revenue for soybeans, soybean meal, cottonseed, cottonseed meal, linseed meal, and flax, United

States, 1947 through 1950. (24) The total freight traffic, by number of cars, for 1947 (including duplications). (25) The total freight traffic, by number of cars, for 1950 (including duplications). (26) Soybeans: Stocks in various positions, United States, quarterly dates, 1942-1951, by number of thousand bushels. (27) The typical cost to farmers, in cents per bushel, for soybean storage on farms and at country elevators, for three-month and six-month storage periods, Midwestern soybean-producing states. (28) Official United States grades and grade requirements for all classes of soybeans. Continued. Address: Minnesota.

719. Goldberg, Ray A. 1952. The soybean industry: With special reference to the competitive position of the Minnesota producer and processor (Continued–Document part II). Minneapolis, MN: The University of Minnesota Press. xv + 186 p. 24 cm. [156 ref]

• ***Summary:*** Continued: List of figures (graphs unless otherwise stated). 1. Soybean acreage harvested for beans, Minnesota, 1934-1950. 2. Soybean production, Minnesota, 1934-1950. 3. Value of Minnesota soybean production, 1935-1950. 4. Map: International trade in soybeans, average for 1935-1939. 5. Map: International trade in soybeans, average for 1948-1949. 6. Acreage of soybeans for beans and other specified crops harvested in Indiana, Illinois, and Iowa, 1924-1950. 7. Map: Ten soybean-producing areas. 8. Prices received by farmers for soybeans, corn, and oats, United States, season average, 1924-1950. 9. Map: Concentration of soybean production in the various types of farming areas in Minnesota, 1949-1950. 10. Map: Types of soils in Minnesota.

11. Bar chart: Cash receipts by commodities, Minnesota, 1949-1950. 12. Bar chart: Destination of exports of soybeans and soybean oil from the United States under the Economic Cooperation Administration (ECA, established in 1948 to administer the Marshall Plan): April 3, 1948-June 30, 1951. 13. Pie chart: United States exports of soybeans. 14. Diagram: The soybean: Uses–derivatives–applications. 15. Map: Distribution of soybean meal in 1945 and production of soybean meal in 1950, by states. 16. Production of specified protein concentrates, United States, 1937-1949. 17. Utilization of soybean oil meal among classes of livestock: Percentage distribution, United States, 1950. 18. Prices of soybean, cottonseed, and linseed oil meals, 1940-1950. 19. Utilization of soybean oil in food and non-food products, percentage distribution, United States, 1940-1950. 20. Supply of cottonseed, soybean, coconut, and other oils and food fats, not including butter and lard: Percentage distribution, United States, 1920-1949.

21. Supply of food fats and oils, United States, 1920-1949 (cottonseed oil, coconut oil, soybean oil). 22. Map: Location of principal producers of shortening, margarine, salad and cooking oils, United States, June 1945. 23. Supply of butter, lard, and other major food fats and oils: Percentage distribution, United States, 1920-1950. 24. Wholesale prices of cottonseed oil and soybean oil, United States, 1935-1949. 25. Utilization of fats and oils in shortening: Percentage distribution, United States, 1920-1950. 26. Map: Location of Minnesota soybean-processing plants, 1951. 27. Proportion of soybeans processed by specified methods, United States, 1937-1950. 28. Flow chart: Soybean oil meal processing, hydraulic method. 29. Flow chart: Soybean oil meal processing, expeller method. 30. Flow chart: Soybean oil meal processing, extraction method.

31. Map of USA: Price of shipping soybean meal per ton from Decatur, Illinois, December 1951. 32. Prices of soybeans: Cash prices of number 2 yellow at Minneapolis, on track bids at Minnesota country points; and futures prices at Chicago, 1950. 33. Cash prices of number 2 yellow soybeans at Minneapolis and Chicago.

34. Soybeans under price support programs, United States, 1941-1950. The first government price support program was in 1942, designed to increase soybean acreage during World War II; both a support price and a ceiling price were established each year for soybeans (see table 42). In 1942, however, only 4,000 bushels were under this price support program; the average price received by farmers for soybeans nationwide was $1.61/bushel whereas the price support was only $1.60 a bushel and the ceiling price was $1.66. From 1943 to 1946 the average priced received by farmers for soybeans was higher than the support price, so essentially no soybeans were under the price support program. During the war there were also price supports for soybean oil and meal. Soybean price supports were higher than ceiling prices of soybean meal and oil. So during this time the government paid the extra cost of the processor's soybeans so the processor would be sure of an adequate crushing margin.

"Supports for soybeans were continued after the war. However the market price remained higher than the support price." Consequently, very few soybeans were purchased by the Commodity Credit Corporation (CCC). The largest percentage of the crop to be under price-support programs was 7% (16,000 bushels) in 1949; this figure fell to 5% (about 14,000 bushels) in 1950.

35. Prices of soybeans: On track bids at Minnesota and Illinois country points. 36. Prices of soybeans: On track bids at Minnesota and Iowa country points. 37. Solvent crushing margins compared to weighted processing costs, seven Minnesota farms. 38. Soybean crushing margins for solvent and expeller plants in Minnesota. 39. Soybean crushing margins for solvent plants in Minnesota and Illinois. 40. Soybean crushing margins for solvent plants in Minnesota and Iowa.

41. Soybean crushing margins for expeller plants in Minnesota and Illinois. 42. Soybean crushing margins for expeller plants in Minnesota and Iowa. Address: Minnesota.

720. Harosoy: New Canadian soybean variety. 1952. Seed color: Yellow.
• ***Summary:*** Sources: Owen, C.W. 1953. "Harosoy new variety [of soyabean] for Ontario." *Soybean Digest.* June. p. 11. Harosoy is a new soybean variety adapted to most of Ontario Province.

Weiss, M.G.; Stevenson, T.M. 1955. "Registration of soybean varieties, V." *Agronomy Journal* 47(11):541-43. Nov. See p. 542. Harosoy (Registration No. 17) "originated as a $BC_4$ selection from the progenies of a backcross Mandarin x (Mandarin x AK) in the soybean breeding program of the Dominion Experimental Farm, Harrow, Ontario, Canada. The variety is characterized by upright determinate growth, short branches held closely to the main stem, light green foliage with upper leaflets tending to have acute points, purple flowers, gray pubescence; pods borne well off the ground, medium light brown in color at maturity, predominantly 2 to 3 seeded and resistant to shattering; beans round in shape, of medium size, and having yellow cotyledons, yellow seed coat with a yellow hilum and bearing a slight brownish tinged spot at the micropyle. Harosoy matures approximately 3 days earlier and exhibits greater field resistance to stem canker than Hawkeye. In maturity it is classified as Group II and its optimum area of adaptation extends from northeast Nebraska and southeast South Dakota eastward through the northern regions of Iowa, Illinois, Indiana, and Ohio and the southwestern area of Ontario.

"After superiority of Harosoy was established at Harrow, it was entered in 1951 in regional tests conducted cooperatively by the Agricultural Experiment Stations of the North Central Region and the U.S. Regional Soybean Laboratory."

"Harosoy was increased by the Dominion Experimental Farm and distributed to growers in 1951. Its acreage is increasing and it has replaced Hawkeye acreage particularly in the eastern belt of its adaptation." A table shows Harosoy and Hawkeye. Harosoy yielded 32.5 bu/acre in 1951-53 regional tests, compared with 31.6 bu/acre for Hawkeye.

USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 11.

721. Ontario Agricultural College. 1952. Soybean investigations at the Ontario Agricultural College–1951. Guelph, Ontario, Canada. 16 p. 28 cm.
• ***Summary:*** Includes results of many soybean variety trials in Ontario, plus a list of varieties entered in the U.S. Regional Soybean Laboratory tests for 1951. Address: Guelph, Ontario, Canada.

722. **Product Name:** Veeline Soy Flour.
**Manufacturer's Name:** Victory Mills Ltd.
**Manufacturer's Address:** 285 Fleet St. East, Toronto, ONT, Canada.
**Date of Introduction:** 1952. January.
**New Product–Documentation:** Ad in Soybean Blue Book. 1952. p. 101. Veeline: Serving industry and agriculture.

Soya Bluebook. 1985. p. 86. The company name and address have changed: Victory Soya Mills Ltd. Div. of Central Soya Co., Inc. 333 Lake Shore Blvd. East, Toronto, ONT, M5A 1C2, Canada.

723. *Soybean Digest.*1953. Victory Mills trophy. Jan. p. 28.
• ***Summary:*** "Victory Mills, Ltd., Toronto, Ontario, has donated a magnificent perpetual challenge trophy to be awarded annually to the grand championship exhibit of soybeans at the Royal Agricultural Winter Fair in Toronto, according to the Fair catalog.

"The Royal Agricultural Winter Fair offers two soybean classes for residents in all parts of Canada, one for early maturing varieties, and the other for any variety other than early."

724. Canadian Press (CP). 1953. Dominion Linseed plant to reopen. *Toronto Daily Star (Canada).* March 27. p. 21.
• ***Summary:*** "Kitchener [Ontario], March 27–The Dominion Linseed Oil Co. at Baden, closed since last June, has been purchased by Toronto Elevators Ltd., it was announced yesterday,

"The plant will re-open Monday with a staff of 20. Ten are former employees laid off when the plant closed. The plant, renamed Baden Linseed Oil Mills, will produce crushed flax, linseed oil and soap. Baden is 10 miles west of Kitchener."

725. *Soybean Digest.*1953. New plant of Toronto Elevators, Ltd. April. p. 27.
• ***Summary:*** A new solvent extraction plant for soybeans, located on Toronto harbor, was recently put into operation by Toronto Elevators, Ltd., Toronto, Ontario, Canada. Having a capacity of 150 tons/day, it was designed and built by Blaw-Knox Construction Co. "It incorporates the unique Rotocel process that permits a very compact unit. Storage facilities for soybeans are provided in the company's 4-million-bushel capacity grain elevators. Additional storage elevators are located in Sarnia... The firm formerly crushed soybeans with Expellers... The soybean oil produced is further processed in the firm's large and modern refinery completed some six years ago. The meal is incorporated into feeds that are manufactured in the company's feed plant." A large photo shows the 2-story plant.

726. Canadian Press (CP). 1953. Ontario soybean growers may get $210,000 bonus. *Toronto Star (Ontario, Canada).* May 15. p. 28.

• ***Summary:*** "Chatham, May 15–With a 20 per cent. increase predicted over last year's 4,000,000 bushel crop, Ontario soybean growers may get an unexpected bonus of $210,000 this year" or 4.2 cents a bushel.

This will happen if soybeans, quickly developing into southwestern Ontario's largest, "is reclassified as a grain by the freight rate reclassification committee of the Railway Association of Canada."

About 85% of Ontario's soybean production is now concentrated in the two counties of Kent and Essex, with Kent producing about half of Canada's soybeans. Last year the crop was worth over $5,00,000 to Kent county soybean growers.

727. Owen, C.W. 1953. Harosoy new variety [of soyabean] for Ontario. *Soybean Digest.* June. p. 11.
• ***Summary:*** Harosoy is a new soybean variety adapted to most of Ontario Province. It is expected to largely replace Harman, compared with which it is earlier in maturing, has stiffer straw, a higher oil content, and a pure yellow seed. A table shows a summary of 6 years' trials at Harrow of Harosoy and 3 other soybeans. Harosoy gave an average yield of 28.1 bushels/acre, compared 25.1 for Harman, 24.4 for Earlyana, and 23.1 for Hawkeye. A photo shows a man standing in a large field of Harosoy soybeans in Middlesex County, Ontario, on 24 July 1952.

Note: This is the earliest document seen (Jan. 2010) that mentions the Canadian soybean variety Harosoy. Address: Asst., Forage Crops, Dominion Experimental Station, Harrow, Ontario, Canada.

728. *Soybean Digest.*1953. Canadian imports continue large. June. p. 15.
• ***Summary:*** "Canada's imports of soybean and soybean oil, which made up 27% of the total importation of fats and oils in 1952, are expected to continue large in 1953." Edible oils imported in 1952 included, in descending order of quantity: cottonseed oil 32,858 tons, coconut oil 8,375 tons, soybean oil 7,840 tons, palm oil 4,198 tons, etc.

729. Roberts, Ivan. 1953. Canada as a continuing market for soybeans. *Soybean Digest.* Sept. p. 48.
• ***Summary:*** A table shows production and importation of soybean oil, whole soybeans, and oilcake meal from 1948 to 1952. Soybean production has more than doubled during this period, from 1,824,000 bu in 1948 to 4,128,000 bu in 1952. At the same time, imports of whole soybeans from the United States increased from 1,245,000 bushels in 1948 to 4,004,000 bushels in 1950, and remained at about 4,600,000 bu in 1951 and 1952, where it is predicted to remain in 1953.

This year, in Ontario and most other provinces, the dairy industry has sponsored legislation, which has been passed into law, to "prohibit the manufacture or sale of any edible oil product, other than margarine, that contains any fat or oil other than that of milk, which has been blended or mixed with a dairy product in such a manner that the resultant edible oil product is an imitation of, or resembles, any dairy product."

While soy meal enters Canada duty free, the U.S. government about 18 months ago doubled the rate of duty on soy meal imported to the USA–from $3 a ton to $6 a ton.

In Canada almost all soybeans are planted in rows that are 24 inches or less apart; this is a narrower spacing than in the USA. Canada has the potential to produce 4 times as many soybeans as it now produces. Address: Agronomist, Victory Mills, Ltd., Toronto, ONT, Canada.

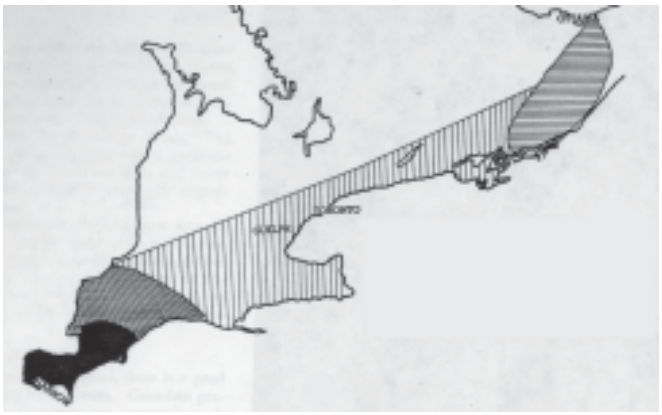
730. Chinn, S.H.F. 1953. A slide technique for the study of fungi and actinomycetes in soil with special reference to *Helminthosporium sativum. Canadian J. of Botany* 31(6):718-24. Nov. [3 ref]
• ***Summary:*** When 2% soybean was added to unsterilized soil, it stimulated spore germination in *Helminthosporium sativum* and a number of other fungi; the germlings of *H. sativum* were unable to establish themselves upon this substrate in competition with other fungi and shortly died. This effect might be used to eliminate long-lived resting spores and sclerotia of root-infecting fungi from the soil. Address: Assoc. Bacteriologist, Lab. of Plant Pathology, Science Service, Saskatoon, Sask., Canada.

731. Dimmock, F.; Warren, F.S. 1953. The influence of time of planting on the yield and composition of soybean seed. *Canadian J. of Agricultural Science* 33(6):550-558. Nov/Dec. [8 ref]
• ***Summary:*** "Planting soybeans at the normal seeding time gave the highest yield and the highest percentage of oil in the seed.

"Delayed planting decreased the yield and lowered the oil content of the seed and the longer the delay, the greater the reductions became.

"Delayed planting showed a tendency to increase both the protein content of the seed and the iodine number of the oil." Address: Div. of Forage Plants, Central Experimental Farm, Ottawa, ONT, Canada.

732. Pellett, Kent. 1953. Room for big expansion of soybean crop in Ontario. *Soybean Digest.* Dec. p. 14-15.
• ***Summary:*** A map shows Ontario's soybean growing areas–actual and potential. Most of Canada's soybeans are grown at the southernmost tip of Ontario province in the area around Harrow and Chatham. In Essex County, Ontario's southernmost county, over 20% of all cleared land is now seeded to soybeans. However acreage and production are rapidly expanding toward the northeast, toward Guelph, Toronto, and eventually Ottawa. In this area are an estimated 8½ million acres that are favorable to



producing soybeans of a maturity ranging from Lincoln to Flambeau.

"Six Canadian soybean processors are listed in the Soybean Blue Book. All except one are located in Ontario. The other is in Manitoba.

"The Ontario Soya Bean Growers' Marketing Board is set up for the purpose of regulating marketing and helping with growers' problems. George Phillips, Muirkirk, is chairman. Gilles DePutter, Appin, is vice chairman."

Present soybean yields in Ontario compare very well with those in the U.S. Cornbelt. The provincial average in 1952 was 24.8 bushels per acre. In the USA only Iowa and Nebraska had higher yields. "Canadians give some credit to narrow-width rows [22-27 inches] for their high yields. They do not grow many soys in corn-row widths [36-42 inches].

Cornbelt varieties such as Lincoln, Hawkeye, and Blackhawk are adapted to Ontario and now widely grown. But the U.S. varieties "have served to introduce troublesome diseases into the area, particularly brown stem rot and stem canker. For this reason, the trend is toward Harrow-developed varieties..."

"The fact that the Harrow station is making good progress in disease work is at least partly due to the fact that a good breeder, C.A. Owen, and a good disease man, Dr. A.A. Hildebrand, are working together very closely at the station."

Photos show: (1) K.A. Standing (secretary-fieldman of the Ontario Soya Bean Marketing Board, Chatham) and Ivan Roberts (agronomist for Victory Mills, Ltd). (2) C.W. Owen, agronomist of the Harrow Experiment Station, with inverted jars of the four soybean varieties he has developed: Harosoy, Harley [Harly], Harman, and the new Hardome.

Note: The six Canadian soybean processors are listed in the Soybean Blue Book are:

(1) Altona, Manitoba: Co-Op Vegetable Oils Ltd. 3 expellers, capacity 50 tons/day. Storage capacity 250,000 bu [bushels]. "Advance" soybean oil meal. Soybean operations 250,000 to 400,000 bu. Served by CP RR [Canadian Pacific Railroad].

(2) Baden, Ontario: Dominion Linseed Oil Co., Ltd. 5 screw presses, capacity 75 tons/day. Storage capacity: 95,000 bu. "Blue Blossom" soybean oil meal. Soybean operations 300,000 by. Served by CN RR [Canadian National Railway / Railways].

(3) Fort William, Ontario: Edible Oils Ltd. Solvent extraction, capacity 50 tons/day. Storage capacity: 500,000 bu. "Edible" soybean oil meal. Served by CN, CP RR.

(4) Hamilton, Ontario: Canadian Vegetable Oil Processing Ltd. 7 expellers, capacity 150 tons/day. Storage capacity: 500,000 bu. "CVOP" soybean oil meal. Served by CN RR.

(5) Toronto, Ontario: Toronto Elevators Ltd. (Queen's Quay). 8 screw presses, capacity 150 tons. Hexane solvent, capacity 150 tons/day. Storage capacity: 2,00,000 bu. "Double Diamond" soybean oil meal. "Master" mixed feeds and pellets. Served by CN, CP RR.

(6) Victory Mills Ltd. (285 Fleet St. E.). Wholly owned subsidiary of Canadian Breweries Ltd., Toronto. Chairman of board, E.P. Taylor. 5 screw presses, capacity 120 tons/day. Hexane solvent, capacity 210 tons/day. [Soybean] Storage capacity: 1,100,000 bu. "Veeline" soybean oil meal. "Soywhite" fat-free soy flour. Served by CN, CP RR. Address: Managing Editor, Soybean Digest.

733. **Product Name:** Soybean Oil, and Advance Soybean Oil Meal.
**Manufacturer's Name:** Co-Op Vegetable Oils Ltd. Renamed CSP Foods in 1976.
**Manufacturer's Address:** P.O. Box 150, Altona, Manitoba, Canada.
**Date of Introduction:** 1953.
**Ingredients:** Soybeans.
**New Product–Documentation:** Soybean Blue Book. 1953. p. 96. 3 expellers, capacity 50 tons. Storage capacity: 250,000 bushels. "Advance" soybean oil meal. Soybean operations 250,000–400,000 bu. Served CP RR [Canadian Pacific railroad]. Note: Two solvent extraction plants of 25 tons/day capacity were built and installed here in 1955 by Crown Iron Works for processing soybeans and rapeseed.

Soybean Blue Book. 1968. p. 96.

*Soybean Digest Blue Book.* 1976. June. p. 124. The entry now reads: Altona, Man.–CSP Foods Ltd., P.O. Box 750. Phone: 324-6481. Storage capacity: 670,000 bu. Soybean, sunflower, and rapeseed operations.

*Soybean Digest Blue Book.* 1978. June. p. 118.

734. Acme: New Canadian soybean variety. 1953. Seed color: Yellow.
• ***Summary:*** Sources: USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 4. * Acme.–Resulted from

increase of a single plant selection made from the variety Pagoda by the Division of Forage Plants, Central Experiment Farm, Ottawa, Ontario, Canada. Released in 1953. Pubescence, gray; flowers, purple; shattering, little; seeds, yellow with yellow hilum, about 2,300 to the pound; cotyledon, yellow; oil, 19,0 percent; protein, 40 percent; iodine number, 129. Maturity, group 0." Footnote: * Acme was "Also the name of an old variety which is believed to be no longer in existence."

*Soybean Digest.* 1960. "Honorary life members [ASA]: Dr. E.E. Hartwig and Dr. Frederick Dimmock." Sept. p. 8. "The program of soybean research which he [Dr. Dimmock] initiated at Ottawa has resulted in the development and distribution of the following early-maturing varieties of soybeans, most of them from hybridization: Mandarin (Ottawa), Capital, Kabott, Pagoda, Comet, Acme, and Merit. These varieties have contributed greatly to the development of a successful soybean industry in Canada, and have been of great importance in the northern United States."

Johnson, Herbert W. 1960. "Registration of soybean varieties, VII." *Agronomy Journal* 52(11):659-60. Nov. See p. 659. Acme (Registration No. 25) "originated as a single plant selection from the variety Pagoda, which came from a cross between Manitoba Brown and Mandarin (Ottawa) made at Ottawa, Canada, in 1930. Acme is characterized by purple flowers, gray pubescence, and light brown pods at maturity. The seed coats, hila, and cotyledons are yellow. Acme is classed in maturity group 00, a recently established group for selections earlier than those in group 0, and is adapted to eastern Ontario, southwestern Quebec, southern Manitoba, and northern counties of Minnesota, Michigan, Wisconsin, and North Dakota.

"Tests conducted at the Central Experimental Farm, Ottawa, and five Branch Experiment Stations throughout Canada indicate that Acme is superior to Pagoda, the parent variety, in yield and oil content and slightly earlier in maturity. It is much earlier than Flambeau, superior in lodging resistance and higher in oil, but shorter in height and lower in yield (table 1a). Acme is one of the earliest varieties in Canada and the United States and there are few released varieties to which it can logically be compared.

"Acme was licensed as a new variety by the Plant Products Division, Department of Agriculture, Ottawa, in 1953 and released for production in Canada in 1954."

*Soybean Digest.* 1962. "Leading soyabean varieties." Feb. p. 8-9. Acme is one of the varieties listed.

735. Hardome: New Canadian soybean variety. 1953. Seed color: Yellow.
• ***Summary:*** Sources: Pellett, Kent. 1953. "Room for big expansion of soybean crop in Ontario." *Soybean Digest.* Dec. p. 14-15. A photo shows agronomist C.W. Owen of the Harrow Experiment Station and 4 soybean varieties he has developed: Harosoy, Harley [Harly], Harman, and the new Hardome.

USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 11. "Hardome.–Selection from a backcross, Mandarin x (Mandarin x A.K.), made by the Dominion Experiment Farm, Harrow, Ontario, Canada. Released in 1953. Pubescence, gray; flowers, purple; shattering, little; seeds yellow with gray hilum about 2,800 to the pound; cotyledons, yellow; oil, 19.8 percent; protein, 40.9 percent; iodine number, 131. Maturity, group 0."

Brown, D.M.; Chapman, L.J. 1961. "Soybean ecology III. Soybean development units for zones and varieties in the Great Lakes region." *Agronomy Journal* 53(5):306-08. Sept/Oct. Hardome is a variety that will mature in this region.

736. Packman, D.J.; Porteous, W.L. 1953. Soybeans: Production on Ontario farms. Utilization and prices in Canada. Ottawa, Canada: Dep. of Agriculture. 15 p. [7 ref]
• ***Summary:*** This booklet is reprinted from two articles published in *The Economic Analyst* 12(6):125-37, Dec. 1952 (which see). Packman's article comprises pages 1-8 of the booklet and Porteous' article comprises p. 9-15. Address: Canada Dep. of Agriculture, Ottawa.

737. Hopkins, R.H.; Jelinek, B. 1954. Mechanism of β-amylase action. I. Multichain action on amylose. *Biochemical Journal* 56(1):136-40. Jan. [17 ref]
• ***Summary:*** Amylose, a major constituent of starch, is hydrolysed by β-amylase in stepwise fashion starting from the non-reducing end. The sole fission products are maltose and continually shortened amylose chains. The authors wish to challenge that theory that amylase acts by a "single chain" mechanism. Beta-amylase was prepared from soya beans. It was found that this enzyme shows no decided preference for either long or short chains; thus, short chains disappeared quickly from a mixture of long- and short-chain polysaccharides. This proved the "multichain" mode of attack by the enzyme. Address: Dep. of Brewing and Applied Biochemistry, Univ. of Birmingham, and Dep. of Biochemistry, Univ. of Alberta, Edmonton, Canada.

738. *News-Gazette (Champaign, Illinois).*1954. Soybeans for use as seed. Feb. 28. p. 35, 37.
• ***Summary:*** Illinois farmers will have to depend on "below-standard" seed to grow their 1954 soybean crop. The standards will be lowered for germination of soybeans that will be certified this year. The extremely hot and dry weather is responsible. Gives a detailed discussion of the Illinois Crop Improvement Association, located at 110 West Green Street, Urbana. Like similar organizations in more

than 40 sates and Canada, it is a member of the International Crop Improvement Association. A photo shows Arthur Menges, inspector for the Illinois Crop Improvement Association, collecting a sample from one bag in a large stack of bags of soybeans for making a germination test.

739. *Soybean Digest.*1954. Seed directory (Ad). March. p. 40.
• ***Summary:*** Soybean seedsmen and seed companies are listed alphabetically by state (and within each state alphabetically by city) in the following states: Arkansas, Illinois, Indiana, Iowa, Minnesota, Missouri, North Carolina, North Dakota, Virginia, Wisconsin, and Ontario (Canada). For each listing is given the amount and varieties of seed available, and whether certified, uncertified, or registered. Most of the entries are for individual farmers.

740. Strayer, George M. 1954. Editor's desk: In this case duty is only an expense. *Soybean Digest.* March. p. 4.
• ***Summary:*** For many years a duty of 2 cents per pound of $1.20 per bushel has been levied by the United States government on all soybeans brought into the United States. "This duty was first levied back in the days when the soybean industry was just getting started, and when growers needed all possible protection. In the meantime we have fought a war [World War II], have changed from a debtor to a creditor nation, and have expanded our soybean industry from a few million bushels to the 300 million bushel level.

"Now the Experiment Station in Ontario, Canada, has come up with a variety of soybeans which growers in the areas adjacent to the Great Lakes find very interesting." But when they enquire about importing seed from Ontario they are immediately confronted with the $1.20 per bushel duty. So today, instead of protecting American farmers, the duty imposes an additional expense on the buyer of the seed.

"Attempts are being made to lift the duty on certified or registered seed."

"The best laid schemes o' mice and men" oft go astray (Robert Burns 1785). Address: American Soybean Assoc.

741. Department of Field Husbandry, Ontario Agricultural College, Guelph. 1954. Soybeans as a cash crop in Ontario. *Ontario Department of Agriculture, Circular* No. 173 (Revised ed.). 7 p. April.
• ***Summary:*** Contents: Production, price and gross returns per acre on selected crops in Essex and Kent counties, 1946-1950 average (grain corn gives the highest gross returns, followed by soybeans). Outlook for 1954. Cultural practices with the soybean crop: Inoculation, planting date, soil, rotations and fertilizers, row widths (20-28 inches recommended), rate of seeding, methods of seeding, depth of planting, weed control, harvesting, varieties (in each of 5 climatic zones, and early, medium, or late within each zone; A map shows the 5 zones and all counties in Ontario. Zone 1, the warmest, is Essex County and most of Kent County), source of seed, storage, marketing. Address: Ontario, Canada.

742. *Soybean Digest.*1954. Victory Mills, Ltd., Toronto, Ontario... May. p. 26.
• ***Summary:*** "... has announced plans for expansion of its storage capacity in Toronto from 3.25 million bushels to 4.25 million bushels. The new elevator, to be built at a cost of $600,000, will handle soybeans and barley." Address: Toronto, Ontario, Canada.

743. Northern Utilization Research Branch, Agricultural Research Service. 1954. Seventh Annual Cooperative Soybean Oil Mills Conference on problems of cooperative soybean oil mills [Proceedings]. Peoria, Illinois. 19 p. Held 3-4 May 1954 at the Hanford Hotel, Mason City, Iowa. Publ: June 21.
• ***Summary:*** This conference was sponsored by: (1) Agricultural Research Service, Northern Utilization Research Branch, Peoria, Illinois; (2) Farmer Cooperative Service, Cotton and Oilseeds Branch [USDA], Washington, DC. (3) North Iowa Cooperative Processing Association, Mason City, Iowa (manager Glenn Pogeler, who gave the first welcoming remarks).

A detailed program is given. Presentations included: "Recent findings on the toxicity of TESOM (trichloroethylene extracted soybean oil meal), by L.L. McKinney of Peoria. Panel discussion: "Procurement problems of cooperative soybean oil mills. Chair: Dr. W.W. Fetrow, Chief, Farmer Cooperative Service. Panelists: Maurice Maze, manager, M.F.A. Cooperative Grain and Feed Company, Mexico, Missouri. S.O. Frey, manager, Producers Cooperative Association, Girard, Kansas. C.W. Hanson, manager, Big 4 Cooperative Processing Association, Sheldon, Iowa. "Government programs as they affect producers and processors of cottonseed and soybeans," by Glenn Pogeler. "Has operation to date justified conversion to solvent extraction?," by Ed Olson (manager, Boone Valley) and Glenn Pogeler. After lunch there was a guided tour of the facilities of the North Iowa Cooperative Processing Association.

On pages 18-19 is a "List of attendance" from Farm Cooperative Associations, listed here alphabetically: Big 4 Cooperative Processing Ass'n, Lake Park & Sheldon, Iowa. Boone Valley Cooperative Processing Ass'n., Eagle Grove & Woolstock, Iowa. Co-Op Vegetable Oils, Ltd., Alton, Manitoba, Canada. Farmers Cooperative Ass'n., Ralston, Iowa. Farmers Cooperative Company, Dike, Iowa. Farmers Grain Dealers Ass'n., Des Moines, Iowa. Farmers Union Grain Terminal Ass'n. [GTA], St. Paul, Minnesota. Imperial Hay Growers Ass'n., Brawley, California. M.F.A. Co-op Grain and Feed Company [MFA], Mexico, Missouri. North Iowa Cooperative Processing Ass'n., Mason City & Nora

Springs, Iowa. Northwest Co-op Mills, St. Paul, Minnesota. Producers Cooperative Ass'n., Girard, Kansas. Southwest Flaxseed Ass'n., Imperial, California. Tri-County Co-op Soybean Ass'n. [later renamed Dawson Mills], Dawson, Minnesota. West Bend Elevator Company, West Bend, Iowa.

Note 1. This is the earliest English-language document seen (June 2006) that uses the acronym "TESOM."

Note 2. North Iowa Cooperative Processing Association apparently now has two plants. Nora Springs is about 9 miles due east of Mason City. Address: Peoria, Illinois.

744. *Soybean Digest.*1954. Canadians process bulk of 1953 crop. June. p. 21.
• ***Summary:*** "The bulk of the record 4,406,000-bushel soybean crop in Canada in 1953 will be processed in Canada as usual... During calendar year 1953 a record 8.6 million bushels of soybeans was crushed in Canada, yielding 45,285 short tons of oil and 206,581 tons of oil meal. The first overseas shipment of Canadian soybeans ever made was reported to have left an Ontario port bound for Western Germany during the early part of last October...

"The continued increase in the production of margarine and shortening in Canada has been a major factor contributing to the increased production and consumption of soybeans... In 1950, soybean oil represented 24 percent of all fats and oils consumed in margarine production; and in 1953, 48 percent."

745. Doig, James L. 1954. Sell soy to humans. *Soybean Digest.* Aug. p. 34.
• ***Summary:*** The author encourages *Soybean Digest* and the American Soybean Assoc. to promote the use of soy (especially soy flour) in human foods worldwide. Address: Montreal, P.Q., Canada.

746. *Toronto Star (Ontario, Canada).*1954. Procter, Gamble buys plant of Victory Mills. Sept. 15. p. 26.
• ***Summary:*** E.P. Taylor, chairman of the board of Canadian Breweries Ltd., announced today that the soybean crushing plant of Victory Mills Ltd., a subsidiary of Canadian Breweries and one of the most modern in Canada, will be sold Oct. 1 to Procter and Gamble Co. of Cincinnati, Ohio. It will be renamed Victory Soya Mills.

Victory Mills was built at the request of Canada's federal government during World War II to help alleviate the country's wartime shortage of fats and oils.

With the change of ownership, production will proceed interrupted. The majority of current employees will retain their jobs; employment will be about 140.

Neil H. McElroy, president of Procter and Gable, will become president of Victory Soya Mills. E.L. Newman will be vice-president and general manager.

A small portrait photo, several columns to the right of this article, shows E.L. Newman, who comes to Toronto from Louisville, Kentucky, where he managed a large soybean mill.

747. *Toronto Daily Star (Canada).*1954. Imperial Bank of Canada announces... Oct. 28. p. 22.
• ***Summary:*** "... Mr. W.E. Williams of Toronto as a Director... Mr. Williams is President and General Manager of the Procter and Gamble Company of Canada, Limited, and a Director of Victory Soya Mills Company, Limited." A portrait photo shows W.E. Williams.

748. *Soybean Digest.*1954. P & G [Procter & Gamble] buys Victory Mills. Oct. p. 19.
• ***Summary:*** "Neil H. McElroy, president of the Procter & Gamble Co., Cincinnati, Ohio, has announced that arrangements have been made for the purchase of the assets and properties of Victory Mills, Ltd., of Toronto, Ontario, through a new Canadian subsidiary company.

"The principal business of Victory Mills Ltd. is crushing soybeans and marketing soybean oil and meal. The mill has the capacity to crush 12 million bushels of soybeans annually. Procter & Gamble's new subsidiary, which is making the purchase, is to be named Victory Soya Mills, Ltd. In announcing the formation of this subsidiary company, Mr. McElroy said, 'Vegetable shortening and margarine are enjoying increased popularity among Canadian housewives. This has resulted in a large growth in sales of the edible fats manufactured by Procter & Gamble of Canada, Ltd., which has been established in Canada for almost 40 years.'

"'The popularity of our products has caused us to look for an established source of oil for our production.' Mr. McElroy indicated that soybeans will be bought to the maximum extent possible from Canadian growers."

Note: According to Duda (1974), Victory Soya Mills, located at 333 Lake Shore Blvd., Toronto, ONT, Canada, was a manufacturer of soy protein products and an affiliate of "Proctor & Gamble" in 1974.

749. **Product Name:** Miss Nineteen Bread.
**Manufacturer's Name:** Wonder Bakeries Ltd.
**Manufacturer's Address:** Ontario, Canada.
**Date of Introduction:** 1954. November.
**Ingredients:** Soybeans.
**Wt/Vol., Packaging, Price:** 19¢ a loaf.
**How Stored:** Shelf stable.
**New Product–Documentation:** Ad in *Toronto Daily Star* (Canada). 1954. Nov. 15. p. 28.

750. Wonder Bakeries Ltd. 1954. Are you on a fight weight diet? Miss Nineteen Bread: Price 19¢ a loaf (Ad). *Toronto Star (Ontario, Canada).* Nov. 15. p. 28.

• ***Summary:*** "Then there's good news! Miss nineteen bread contains nineteen different ingredients, such as 100% whole wheat flour, gluten flour, soya flour, plus small amounts of (water-free) dehydrated vegetables–asparagus, kale and string beans... Be sure to include this good tasting bread in your Fight-Weight diet. One 18-gram slice... contains approximately 45 calories."

"Fat added? No. Shortening added? No. Crisp, crunchy toast. For home delivery call Miss Nineteen LO. 1191. Baked and sold exclusively by Wonder Bakeries Ltd.

A large photo shows the wrapped loaf with the silhouette of a ballerina doing a pirouette on top of it. Another ballerina is on the side of the loaf's wrapper.

751. **Product Name:** Lecithin.
**Manufacturer's Name:** Lecithin Products (Canada) Ltd. Subsidiary of W.A. Cleary Corp., New Jersey.
**Manufacturer's Address:** 48 Dundas St. West, Belleville, ONT, Canada.
**Date of Introduction:** 1954.
**New Product–Documentation:** Soybean Blue Book. 1954. p. 105.

752. **Product Name:** Soybean Coffee (Dietary Food).
**Manufacturer's Name:** MacDowell Brothers.
**Manufacturer's Address:** P.O. Box 141, Brockville, ONT, Canada. Also at Ogdensburg, New York.
**Date of Introduction:** 1954.
**New Product–Documentation:** Soybean Blue Book. 1954. p. 102. "Dietary Foods." No brand name given. Disappears after 1 year, then reappears in 1958 as "Soybean Coffee." *Soybean Digest Blue Book.* 1977. p. 32.

753. *Manitoba Department of Agriculture, Annual Conference of Manitoba Agronomists (Canada).*1954. Soyabean yield trials–1953. 63 p. For 1953. *
• ***Summary:*** In trials over 4 years at 3 locations, yields of Acme, Kabott, and Flambeau averaged 21.7, 25.3, and 30.7 bushels/acre respectively. In sowing-date trials, yields following sowings on 16 and 26 May were similar and were significantly higher than when sowings were made on May 6 or June 8. In spacing trials, the varieties Acme and Flambeau produced progressively higher yields as row spacing decreased from 36 to 18 inches, the responses being greater for Acme (a small and early variety) than for Flambeau.

754. Comet: New Canadian soybean variety. 1954. Seed color: Yellow.
• ***Summary:*** Sources: USDA Agricultural Marketing Service. 1957. "Soybean variety names." Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act." See p. 7. "Comet.–Selection from a cross between Pagoda and Mandarin by the Division, of Forage Plants, Central Experiment Farm, Ottawa, Ontario, Canada. Released in 1954. Pubescence, gray; flowers, purple; shattering, little; seeds, yellow with yellow hilum, about 2,800 to the pound; cotyledons, yellow; oil, 20,0 percent; protein, 40.0 percent; iodine number, 133. Maturity, group 0."

*Soybean Digest.* 1959. "Soybean varieties: The leading varieties acreagewise in soybean growing states as reported by state statisticians, crop improvement associations, and agronomists." Jan. p. 20, 22-23. The approximate percentage of leading soybean varieties grown in North Dakota is: Capital 20%, Grant 20%, Norchief 20%, Comet 10%.

*Soybean Digest.* 1960. "Honorary life members [ASA]: Dr. E.E. Hartwig and Dr. Frederick Dimmock." Sept. p. 8. "The program of soybean research which he [Dr. Dimmock] initiated at Ottawa has resulted in the development and distribution of the following early-maturing varieties of soybeans, most of them from hybridization: Mandarin (Ottawa), Capital, Kabott, Pagoda, Comet, Acme, and Merit. These varieties have contributed greatly to the development of a successful soybean industry in Canada, and have been of great importance in the northern United States."

Johnson, Herbert W. 1960. "Registration of soybean varieties, VII." *Agronomy Journal* 52(11):659-60. Nov. See p. 659. Comet (Registration No. 27) "originated as an $F_6$ plant selection from the cross Pagoda X Mandarin (Ottawa) made at Ottawa, Canada, in 1941. Comet is characterized by purple flowers, gray pubescence, and light brown pods at maturity. The seed coats, hila, and cotyledons are yellow. Comet is classed in maturity group 0 and is adapted to eastern Ontario, southwestern Quebec, and areas in Minnesota, Michigan, North Dakota, and Wisconsin.

"Regional tests conducted by agricultural experiment stations in northern United States and in Canada indicate that Comet is slightly later in maturity than Norchief but excels the latter to some extent in yield, plant height, and seed quality. It is quite resistant to lodging and high in oil content (table 1c).

"Comet was licensed as a new variety by the Plant Products Division, Department of Agriculture, Ottawa, and released for production in Canada in 1954."

755. *Soybean Digest.*1955. Seed directory (Ad). March. p. 36.
• ***Summary:*** Soybean seedsmen and seed companies are listed alphabetically by state (and within each state alphabetically by city) in the following states: Alabama, Arkansas, Illinois, Indiana, Iowa, Minnesota, Missouri, North Carolina, Ohio, Virginia, and Ontario (Canada). For each listing is given the amount and varieties of seed available, and whether certified, uncertified, or registered. Most of the entries are for individual farmers.

756. *Department of Field Husbandry, Ontario Agricultural College (Guelph, Canada), Circular.*1955. Soybeans as a cash crop in Ontario. No. 173 (Revised ed.). 7 p. April.
• ***Summary:*** A previous edition, very similar in content, was published in April 1954.

757. *Soybean Digest.*1955. 1954 world [soybean] crop hit new record. April. p. 20. [1 ref]
• ***Summary:*** According to the USDA Foreign Agricultural Service, world soybean production established a new record in 1954; 742.8 million bushels were harvested, up 14% over 1953. Over 80% of the increase was accounted for by the United States. Most of the remaining increase occurred in China-Manchuria. In 1953 China produced 198 million bushels and Manchuria produced 134 million. In 1954 Manchuria's production statistics were included with those of China, the total being 350 million bu. Canada also set a new record with 5.065 million bu harvested. Also mentioned (with production statistics for 1953 in bushels) are Italy (35,000), Yugoslavia (155,000 avg. 1945-49), Other Europe (565,000) USSR (NA), Turkey (125,000), Indonesia (10,839,000), Japan (15,777,000), South Korea (4,995,000), Taiwan (Formosa) (640,000), Thailand (743,000), Brazil (3,242,000), Tanganyika (25,000), Nigeria (the biggest producer in Africa with 140,000 to 150,000 bu for export), and the Union of South Africa (68,000).

In Brazil, soybeans are produced in the states of Rio Grande do Sul and Sao Paulo. Average soybean acreage (harvested acres) in Brazil: 1945-1949: 23,000 acres. 1953: 148,000 acres. 1954 (preliminary): 162,000 acres. Average soybean yield in Brazil: 1945-1949: 19.0 bu/acre. 1953: 21.9 bu/acre. 1954 (preliminary): 22.7 bu/acre. Average soybean production in Brazil: 1945-1949: 446,000 bushels. 1953: 3,242,000 bushels. 1954 (preliminary): 3,674,000 bushels. "Brazil's harvest at 3.5 million bushels was up 13% from the year before. Some 2.6 million bushels were expected to be available for either crushing or export. The much-publicized program to increase soybean planting in Sao Paulo has so far met with discouraging results. This reportedly is due to the farmers' dissatisfaction with the earnings derived from soybeans compared with cotton and some other crops and to a shortage in Sao Paulo of combine harvesters."

Note 1. This is the earliest document seen (Jan. 2005) that gives soybean production or area statistics for Brazil.

Note 2. This is the earliest document seen (Jan. 2005) concerning the USDA's Foreign Agricultural Service and soybeans.

758. *Soybean Digest.*1955. Canadian imports set record. June. p. 25.
• ***Summary:*** In October 1953 Canada exported its first soybeans. During 1954 approximately 650,770 bushels were shipped overseas, largely to the United Kingdom.

Tables show: (1) Canada–Soybean crushed (bushels), soybean oil production (short tons), and soybean oilcake and meal production (short tons) (1945-1954). Soybeans crushed increased from 973,178 bu in 1945 to a record 9,438,795 bu in 1954. (2) Canadian imports–Soybeans (bushels), edible soybean oil, and inedible soybean oil (short tons). Soybean imports increased from 1,311,417 bu in 1945 to a record 6,873,965 bu in 1954.

759. Youngs, C.G.; Sallans, H.R. 1955. Acetone as a selective solvent for vegetable oils. *J. of the American Oil Chemists' Soc.* 32(7):397-400. July. [9 ref]
• ***Summary:*** Discusses research on the modification of drying- and semi-drying oils (soybean and linseed oil) using acetone. The authors found that useful fractionations of soybean (iodine value = 129.3) and linseed oil could be made by using as solvent 100 parts of acetone and 3 to 7 parts of water.

The authors constructed a pilot plant in Saskatoon and ran a number of tests using soybean oil in the plant. It is not known where the soybeans that provided this oil were grown; there is no indication that they were grown in Saskatchewan, or even in Canada. Address: Prairie Regional Lab., National Research Council, Saskatoon, Saskatchewan, Canada.

760. Weiss, M.G.; Stevenson, T.M. 1955. Registration of soybean varieties, V [Dortchsoy 67, Dorman, Capital, Harosoy, Improved Pelican]. *Agronomy Journal* 47(11):541-43. Nov. [12 ref]
• ***Summary:*** These are soybean registrations nos. 14-18. Dortchsoy 67 originated in the soybean breeding program of the Robert L. Dortch Seed Farms, Scott, Arkansas; the original cross was made in 1942. Capital and Harosoy originated in Ottawa, Canada. Address: Bureau of Plant Industry, U.S. Dep. of Agriculture; American Society of Agronomy.

761. Fisher, J.E. 1955. Floral induction in soybeans. *Botanical Gazette* 117(2):156-65. Dec. [11 ref]
Address: Botany and Plant Pathology Div., Science Service, Ottawa, Canada.

762. McCay, Clive M.; McCay, Jeanette B. 1955. You can make Cornell Bread–at home or in the bakery. Ithaca, New York: Published by the authors. 16 p. Illust. 21 cm. Revised, 1961, 1973. 33 p.
• ***Summary:*** Contents: Where to buy ingredients ("Full fat soy flour may be ordered directly from Spencer Kellogg & Sons, Box 1031, Decatur, Illinois. 5 lbs. for $1.00"). Introduction (How rats grow on good and regular bread). Tips for good luck. Family recipe for Cornell (Triple Rich) bread (calls for ½ cup full-fat soy flour). Fifty-fifty whole-

wheat bread. Cornell oatmeal bread. Cornell wholewheat bread. Cornell sweet breads. Refrigerator potato rolls. Cornell (Triple Rich) Bread–Straight dough method. Cornell (Triple Rich) Bread–Sponge method (Courtesy of Messing Bakeries, Brooklyn, New York). The "Open Recipe" ("Any baker can make the Cornell formula without permission and without charge. However, each baker is requested to formula on the wrappers, including 'how much' of each ingredient. The label on Cornell bread should read that for every 100 pounds of unbleached enriched flour there are

"2 pounds wheat germ

"8 pounds dry milk

"6 pounds high fat soy flour

"If you find these proportions on the wrapper you'll know you have Cornell bread").

Bakers who have inquired about Cornell Bread (Names of 110 bakers in the United States and Canada, listed alphabetically by state, and within each state, alphabetically by company name. New York state has the most with 37, followed by Pennsylvania with 8, and California with 7).

This booklet is filled with informative black-and-white photos by Louise Boyle showing the processes and finished products described. One shows a bag of Co-op Full Fat Soy Flour.

An earlier 1955 edition of this booklet omitted the list of bakers and added a bakery formula for Cornell (Triple Rich) bread plus a recipe for sour rye bread. Address: Route 1, Ithaca, New York.

763. Shea, Albert A. 1955. Vision in action: The story of Canadian Breweries Limited from 1930 to 1955. Toronto, Ontario, Canada: Canadian Breweries. See p. 53. *
• ***Summary:*** "In 1938, (E.P. Taylor) had encouraged Canadian Breweries Limited to invest in a subsidiary company known as Sunsoy Products Limited, which processed soybeans on a small scale in Toronto. The experience convinced him that a large unit, including elevators and a processing plant, could produce oil needed to overcome the wartime shortage of shortening, margarine and soap, and that it would also have a good economic future when the war was over. The approval of the board of directors was obtained for the establishment of a company to be known as Victory Mills Limited."

764. *Soybean News.*1956. Soybean champions: Canadian champion 67.93 bushels. 7(3):1, 4. Feb.

765. American Soybean Association. 1956. Soybean Blue Book. Hudson, Iowa: American Soybean Assoc. 160 p. Advertisers' index. 22 cm.
• ***Summary:*** Under the heading "Canadian production" are three tables (p. 30) with the following titles: (1) "Production of soybeans in Canada, 1942-1955." For each year gives acreage, yield per acre, and total production–which was 5.650 million bushels in 1955.

(2) "Production of soybean oil and oilcake in Canada." For each crop year from 1943-44 to 1954-55 gives soybeans crushed (bushels), oil produced (tons), and oilcake and meal produced (short tons). The crush increased from 241,315 bushels the first crop year to 10,211,418 bushels the last year.

(3) "Soybean production, utilization and value, Canada." The columns are: (1) Year beginning Aug. 1, from 1936 to 1955. (2) Production. Statistics for early years are given: 248,000 bu in 1936. 159,000 bu in 1937. 204,000 bu in 1938. 215,000 bu in 1939. 233,000 bu in 1940. 217,000 bu in 1941. 872,000 bu in 1942. Footnote: "With the exception of the period 1943-45 when small quantities were grown in Manitoba and British Columbia, the production of soybeans in Canada has taken place in the province of Ontario." (3) Imports. Increased from 7,000 bu in 1936 to 7,683,000 bu in 1954. Imports dropped sharply during the years 1940-1942. (4) Supplies (1,000 bu). (5) Exports of soybeans. Started in 1953 with 568 (units not given), increasing to 905 in 1954. (6) Farm value of production. Increased from $1,509,000 in 1942 to $11,857,000 in 1954. (7) Processed for oil and meal (000 bu). (8) Soybean oil produced (000 lb). (9) Soybean oilcake produced (short tons). Address: Hudson, Iowa.

766. Jogaratnam, T. 1956. The marketing of soybeans in Ontario 1945-1954. MSc thesis in agriculture, University of Ontario. Published by the Ontario Soya-Bean Growers' Marketing Board, Chatham, Ontario, Canada. iv + 122 p. June. 28 cm. [12 ref]
• ***Summary:*** Contents: 1. Introduction. 2. The world situation in fats and oils: Edible vegetable oils, palm oils, industrial oils, animal fats, marine oils. 3. Canadian production of fats and oils: Edible vegetable oils, industrial oils, animal fats, marine oils. 4. Canadian trade in fats and oils: Edible vegetable oils, industrial oils, palm oils, animal oils, marine oils, tariffs, on fats, oils and oilseeds. 5. Grades and grading of soybeans in Ontario. 6. Utilization of soybeans in Canada: Utilization of soybean oils, utilization of soybean oilcake and meal. 7. The prices of soybeans in Ontario: Basis for the establishment of prices, marketing and processing margins, seasonal variations in soybean prices, hedging and the effectiveness of hedging. 8. Transportation of soybeans in Ontario: Road transportation, water transportation, railroad transportation, transit privileges and benefits to growers, local freight rates to Toronto. 9. The Ontario Soybean Growers' Marketing Scheme. 10. Summary and conclusions.

Contains the following 31 tables: 1. Fats, oils, and oilseeds: Estimated world production, average 1935-39, annual 1946-1954. 2. Fats, oils, and oilseeds: World exports, average 1935-39, annual 1947-1954. 3. Fats and

oils used in shortening in U.S.A. & U.K. 4. Fats and oils used in margarine in U.S.A. 5. Percentage distribution of consumption of fats and oils in all drying oil products, by kind of oil, in United States, 1931-1954. 6. Utilization of fats and oils in drying oil products, by type of product, in United States, 1932-1953. 7. Production of fats, oils and oilseeds in Canada, 1945-54. 8. Oilseed crushings and production of oil, and oil cake and meal in Canada, 1945-54. 9. Production of soybeans in Elgin, Essex, Kent, Middlesex and Lambton counties, 1945-54. 10. Imports of fats, oils and oilseeds into Canada, 1945-54. 11. Exports of fats, oils and oilseeds from Canada, 1945-54. 12. Customs tariff on fats, oils and oilseeds imported into Canada. 13. Tariffs levied on Canadian exports of fats, oils and oilseeds by some of the principal markets. 14. Comparison of Canadian and United States grading standards for soybeans. 15. Apparent domestic disappearance and quality of soybeans crushed in Canada, average 1945-1949, and annually 1950-1954. 16. Apparent domestic disappearance of soybean oil in Canada, average 1945-1949, and annually 1950-1954. 17. Total domestic disappearance of soybean oil, and its utilization in margarine and shortening in Canada 1950-1954. 18. Utilization of oils and fats in margarine and shortening in Canada, 1950-1954. 21. Total domestic disappearance of soybean oils and its utilization in the manufacturing industries in Canada, 1948-1954. 22. Utilization of industrial oils in the paints and varnishes industry in Canada, 1948-1954. 23. Production, trade and apparent domestic disappearance of soybean oil cake and meal in Canada, 1950-1954. 25. The average cost per pound in Canada of digestible protein from different sources, 1948, 1951, 1953. 26. Utilization of soybean meal, linseed meal and meat meal in the feeds industry in Canada, 1948-1953. 27. Average annual prices and marketing margins of soybeans in Ontario, 1948-54. 28. Changes in cash prices of Ontario soybeans over 8 week periods, by years, 1951-1954. 29. The number of effective and ineffective eight week hedges on near or second near month futures at Chicago [Board of Trade, Illinois] having various degrees of effectiveness, by years, 1951-1954. 30. Amounts by which gains or losses were decreased or increased by using the hedge over not using the hedge, at Chicago over 8 week periods, by years, 1951-1954. 31. Freight rates on soybeans and soybean meal from points in S.W. Ontario to Toronto, Montreal and St. John, New Brunswick–1956.

Production of margarine in Canada has been permitted only since Jan. 1949. Table 18 (p. 62) shows that the amount of soybean oil used in margarine has increased steadily (mostly at the expense of cottonseed oil) from 9,093 tons in 1950 to 22,009 tons in 1953–at which time it was by far the most widely used oil or fat used in Canadian margarine, accounting for 49.1% of all oils used. The amount of soy oil used in shortening in Canada has likewise increased from 16,943 tons in 1950 to 22,744 tons in 1954–at which time it was also by far the most widely used oil or fat used in Canadian shortening, accounting for 28.9% of all oils used.

The volume of soybean oil used in industrial, non-food products is relatively small, but increasing. The volume used in paints and varnishes rose from 266 tons in 1948 to 3,440 tons in 1954. The volume used in the primary plastics industry rose from 748 tons in 1951 to 1,746 tons in 1954.

"The Ontario Soybean Growers' Marketing Scheme for regulating and controlling the marketing of soybeans in Ontario was established in 1949 under the Farm Products Marketing Act of Ontario 1946. The Act created a Farm Products Marketing Board with powers to regulate or enter into the actual marketing or regulated farm products." Under the Marketing Scheme "was established a local producer board known as the Ontario Soybean Growers' Marketing Board. The Board as it operates today consists of eleven members who are elected annually by the District Soybean Growers Committee. Growers producing soybeans are divided into six districts, comprising the counties of Essex, except Pelee Island; and the counties of Elgin, Kent, Lambton and Middlesex. Growers of soybeans who do not belong to any of the above districts may become members of the district that is closest to their places. Growers belonging to each district elect members annually to the District Soybean Growers' Committee on the basis of one representative for every 250 growers" (p. 112-13).

"The Soybean Growers' Marketing Board has, since its formation, entered into yearly agreements with the dealers and processors. These agreements have mainly concerned themselves with minimum prices, moisture contents and cleaning, handling, storage and selling charges and have differed very little from year to year. The minimum price for soybeans produced in Ontario have been set at the trading price for each day on an open market basis. The maximum discounts for soybeans containing over 14 percent moisture content have been set at 1½ cents per bushel for each ½ percent of moisture content over 14 percent. It has also been agreed that dealers should charge a maximum of 10 cents per bushel for cleaning, handling, and selling soybeans" (p. 114).

"The activities of the Soybean Growers' Marketing Board would thus seem to be mainly limited to negotiating prices, dealers' commissions and storage charges. No attempts have been made to handle the product and engage directly in marketing activities. Even in negotiating prices, it is interesting to note that in no year has any definite minimum price been set" (p. 115).

Note: This is the earliest document seen (Feb. 2000) that mentions the "Ontario Soya-Bean Growers' Marketing Board" (see title page) or the "Ontario Soybean Growers' Marketing Board" (slightly different spelling, see p. 112). Mr. Kenneth Standing is Secretary of the Board. Address: Ontario, Canada.

767. Collins-Williams, C. 1956. Clinical studies with powdered Sobee, a new milk substitute. *Canadian Medical Association Journal* 75(11):934. Dec.
• ***Summary:*** Powdered Sobee was tested and found to be acceptable as a milk substitute in the feeding of allergic infants. The composition of the product is given. It was tested on 25 infants whose average age was 7½ months, and was well accepted by 23 of these infants. One infant took it only if it was mixed with cereal. One refused it. Weight gain and stools were normal. Address: M.D., Allergy Clinic. Hospital for Sick Children, Toronto, and Dep. of Pediatrics, Univ. of Toronto, Canada.

768. Bailey, Ethel Zoe. 1956-1973. Glycine max–U.S. and Canadian sources. Ithaca, New York: L.H. Bailey Hortorium. 1 card. Unpublished.
• ***Summary:*** This hand-written index card is in the Bailey Hortorium's index system of nursery catalogs and/or botanic garden seed lists developed by Ethel Zoe Bailey. On the card are two-part coded entries referring to botanic gardens or nurseries. Part 1 is the code for the name of the botanic garden, and part 2 is the last two letters of the earliest year in which the plant for that card appeared in this garden's catalog. For example "B.C. 56" refers to the 1956 catalog of the British Columbia Botanic Garden. There are only two listings for *Glycine max* from U.S. and Canadian sources: (1) B.C. 56–British Columbia Botanic Garden, BC, Canada, 1956. (2) Redw. 73–Redwood City Seed Co., Redwood, California, USA, 1973. Address: L.H. Bailey Hortorium, 462 Mann Library, Cornell Univ., Ithaca, New York 14853-4301. Phone: 607-255-7981. Fax: 607-255-7979.

769. Campbell, D.R. 1956. Country elevators in south-western Ontario handling corn, soybeans, wheat, and white beans, 1955-56: A preliminary report. Ontario, Canada. Ontario Dep. of Agriculture. 24 p. 28 cm.
• ***Summary:*** Contents: Introduction. The 15 areas studied (table and map) in Essex, Kent, Elgin, Middlesex, Lambton, and south Huron counties. Description of the 15 areas: Townships, number of silos and bins, total storage capacity, amount of grain and beans handled, number of elevators, number of bushels, cleaner capacity per hour, sheller capacity per hour, value of grain storage and handling facilities. Totals from the 15 areas: Facilities, volume and value of grain handled. Payments, grading, and testing for moisture content (94-97% all elevators paid for soybeans and other crops based on their moisture content, and 85-86% also paid by grade). Location relative to railways. Contracting. Ownership of elevators. Seasonality of shipments.

"One of the most remarkable developments in Ontario agriculture over the post-war period has been the increasing importance of cash crops." In 1939 the 4 crops studied represented 14% of the value of all field crops grown in Ontario; by 1954 they represented 27% of the value. Corn comprises about 58% of the volume (in bushels) handled, soybeans 22%, wheat 16%, and white beans 4%. Address: Dep. of Agricultural Economics, Ontario Agricultural College, Guelph, ONT, Canada.

770. Chao, Buwei Yang. 1956. How to cook and eat in Chinese. London: Faber and Faber. 286 p. Illust. Index. 21 cm.
• ***Summary:*** The basic information about soy in this 1956 British edition is quite similar to that in the original 1945 American edition except: (1) British spelling is used (e.g., flavour instead of flavor), and additional information about European ingredients or substitutes; (2) The same (or almost the same) text appears on different pages. See pages 20-21 (Vesop is very much like soy sauce. Clear-simmering is slow-cooking without soy sauce. Red-cooking is slow-cooking with soy sauce), p. 43-44 (red beans, [probably azuki], horse beans, soy beans and their products, bean milk and bean curd [tofu]), p. 46 ([soy] bean oil and peanut oil), p. 47 (soy sauce), p. 49-50 (soy-bean sauce, soy sauce or *shi-yau* in Cantonese, "Acceptable substitutes for soy sauce in the order of preference, are as follows: 'Vesop' sauce (Italian), 'Maggi' (German), and 'Kub' (French))." "Similar to soy sauce is a soy jam, fermented flour jam, "In Cantonese the soy jam is called *mo-shi."* Oyster sauce, sesame oil, soy bean cheese *(fu-yü).*

Soy-related recipes include: Bean curd stirs meat slices (p. 84-85). Bean curd stirs shelled shrimps (p. 144). Arhat's fast or Vegetarian's ten varieties (with wheat gluten, bean curd skin [yuba], fried puffy bean curd, soy sauce, etc., p. 180-81). Plain stirred bean curd (p. 181-82). Oyster sauce bean curd. Mushrooms stir bean curd. Scallions stir bean curd (p. 182-83). Pot-stuck bean curd (p. 184). Bean curd and meat-slice soup (p. 188). Huichou pot (with fried bean curd [large triangles or small cubes], p. 204-05). Sandy-pot bean curd (p. 205-06). Soy jam noodles (p. 224-25, with ½ can *yünshi* soy jam {also called *mo-shi* in Chinese foodshops}).

Pages 181-82 discuss bean curd. The Chinese characters for all recipe names are given on pages 257-71. Address: Cambridge, Massachusetts.

771. Schwitzer, M.K. 1956. Margarine and other food fats: Their history, production and use. New York, NY: Interscience Publishers, Inc. 385 p. [52 ref]
• ***Summary:*** Contents: List of illustrations. List of tables. Preface. 1. Food fats: Definitions, types of margarine and related products. 2. Margarine and cooking fats: Their history and world trade. 3. Fats used in margarine and cooking fats. 4. Processing fats for margarine and cooking fats. 5. Theoretical aspects. 6. Margarine manufacture. 7.

The manufacture of cooking fats and related products. 8. Wrapping, packing, and preserving. Industrial uses of margarine and cooking fats. 10. Dietary and legal aspects.

Page 43 states: "Soyabean oil is not used a great deal in the manufacture of cooking and table oils, due to its tendency to develop an unpleasant flavour."

Page 50 discusses "vanaspati ghee," which it describes as "a cooking fat produced entirely from vegetable fats to replace natural clarified buffalo or cow butter. This cooking fat is called vanaspati ghee or vegetable ghee in India where it replaces natural ghee. Since before the last war when production in India was negligible, many factories have been installed for the manufacture of vanaspati ghee... The raw materials used are mainly groundnut, cottonseed, and sesame fats as well as smaller quantities of other vegetable fats. There are two ways of making vanaspati ghee: either a hydrogenated fat is mixed with a soft fat or a single fat is hydrogenated in a not too selective way." The latter method makes a better product, with much better keeping quality and a smoother texture. The melting point of vanaspati ghee in India is fixed by law between 31º and 37ºC. "Vanaspati ghee is not used for spreading like butter or margarine in the West. It is consumed in a heated liquid form, or in the preparation of curries, sweets and other foods."

Soyabean oil is discussed on the following pages: Fats used in margarine and cooking fat (p. 88-89, 91-92), incl. groundnut oil (p. 97-98). Soyabean oil (p. 98-105): The soyabean–The universal crop. The plant. Handling soybeans. Fat extraction. Soyabean oil and lecithin. A full-page illustration (p. 96) shows the soybean processing plant of Victory Oil Mills at Toronto, Ontario, Canada.

Use of lecithin in margarines (p. 142-43). Tocopherols and vitamin E (p. 146). Continuous deodorization (p. 181). Typical composition of fat blends of some margarines (p. 241). Address: Highgate, UK.

772. Schwitzer, M.K. 1956. Margarine and cooking fats: Their history and world trade. I (Document part). In: M.K. Schwitzer. 1956. Margarine and Other Food Fats: Their History, Production and Use. New York, NY: Interscience Publishers, Inc. 385 p. See p. 59-78. Chap. 2. [52 ref]
• ***Summary:*** Contents: The invention of margarine in France. Other countries follow. The coining of a new word. The history of cooking fat [shortening]. Impact of fat hydrogenation. Recent expansion in margarine consumption. Consumption levels of margarine (per capita). Present world trade in margarine. The production of cooking fats (shortenings).

Margarine was invented in France in 1869 by the French chemist-turned-business man, Hippolyte Mège-Mouriés. Production started at Poissy in about 1872-73. In other European countries, margarine production started as follows: Netherlands in 1871, by the Jurgens and Van den Berghs in the little village of Oss; Denmark 1870-71, by Otto Monsted, Denmark soon had the highest per capita margarine consumption; Austria-Hungary 1873-74, in Liesing near Vienna; Germany 1875; United Kingdom 1889–Otto Monsted established England's first margarine plant in an old hat factory in Godley, Manchester. Demand was so great that he had to erect a new factory in Southall near London. Production began in March 1895 at the rate of more than 1,500 tons/week. The word 'margarine' was first used by Mège's teacher, Michel Eugène Chevreul, around 1813. At a meeting of the French Academy on 13 July 1813 Chevreul reported on a fat-like substance that he had prepared and which he named margarine or margaric acid

Page 59 states: "When Napoleon III had offered a prize in 1869 for a butter substitute that would be cheaper and would keep better than cows' butter, Mège was an easy winner, as by then he had produced a satisfactory product. A factory was installed in Poissy, but manufacture did not get under way until after the Franco-Prussian war of 1870-71 [in which France under Napoleon III was defeated by Prussia under Bismark]. The way was not clear, however, until Félix Boudet, a distinguished chemist retained by the French health authorities for the purpose, had reported favourably on the new product. On 12th April, 1872, a regulation was passed permitting the sale of margarine, but it was not to be called butter. Mège promptly formed the 'Société Anonyme d'Alimentation' with a capital of 800,000 francs. Large scale production started in 1873."

The Mège patent in the USA, issued in May 1874, was purchased by the United States Dairy Co., which hired Henry A. Mott to improve on Mège's method. A number of U.S. margarine patents were issued in the following years. Many of these suggested the use of lard or vegetable fats instead of oleo oil. One of the improved methods was used by the Commercial Manufacturing Co. in New York, which soon became America's largest margarine manufacturer.

Margarine was introduced to the USA after the Civil War, when the country was undergoing profound economic changes. Farmers strongly resisted the introduction of margarine, believing that it would compete with the butter made on their farms.

The word "margarine" was coined by Mège's teacher, Michel Eugène Chevreul, in about 1813. At a meeting of the French academy on 13 July 1813 Chevreul reported on a fat-like substance that he had prepared and which he named margarine or margaric acid. The name was derived from the Greek word for pearl *(margarites)* He gave its chemical formula as $C_{17}H_{34}O_2$. What Chevreul thought to be a new substance was, in fact, a mixture of palmitic and stearic acids.

Since Mège's crystalline substance had a pearly luster, he gave the soft portion of the tallow, expressed after digestion, the name oleo-margarine, since he believed it to be a mixture of oleine and margarine.

As in the Greek root the *g* is pronounced hard like the *g* in garlic; it is incorrect to pronounce margarine as marjarine, as if the g were replaced by j.

In England, margarine (imported from Holland) was first sold under the name of Butterine. This name was dropped in 1887 after Parliament passed the first Margarine Act (p. 63).

The histories of margarine and cooking fat [shortening] are closely connected. "Whereas all the important developments in the early history of margarine took place in Europe, the first significant pages in the history of cooking fat were written in America. It is ironical that one of the largest lard-consuming and exporting countries [USA] should have been the first to turn to an alternative. There is here a parallel with Denmark, which as the biggest exporter of butter had the highest *par caput* consumption of margarine. The new lard substitute was called 'compound' lard or 'shortening' in the United States; both were misnomers. There was often very little or no lard present, nor was the new product used only for baking purposes where 'shortness' was required. Compound fat or cooking fat are more correct designations" (p. 63).

"The introduction of hydrogenation into fat technology can be regarded as the re-birth of the margarine and cooking fat industries... No more was it necessary to rely on animal fats which were available only as by-products of the meat-packing and dairy industries." In 1902 Normann announced that he had hardened a liquid fat by hydrogenating it with a catalyst. Early commercial success was expected. Patents were applied for in Germany by a plant engineering firm (Leprince and Sivke; German Patent No. 141,029, of 1902) and by Normann himself in the United Kingdom (No. 1,515, or 1903). Normann's work was based on earlier experiments by Varentrapp (1840), Sabatier, Senderens, and others. The first large-scale hydrogenation plant began operations in 1906 in England, at Crosfield's factory in Warrington. In Germany the Oelwerke Germania, at Emmerich on the Rhine, started a plant for hydrogenating whale and linseed oils. Several years later, Procter & Gamble Co., Cincinnati, Ohio, began commercial hydrogenation in the USA.

Canada: Recent developments with margarine in Canada have followed those in the USA. In 1948 the Supreme Court rules that the provisions of 1935 Dairy Industry Act relating to margarine were invalid; in 1949 margarine was first produced in Canada. By 1952 margarine production had reached 47,000 tons, making Canada the second largest margarine producer in the British Commonwealth, after Great Britain. Address: Highgate, UK.

773. Schwitzer, M.K. 1956. Margarine and cooking fats: Their history and world trade. II (Document part). In: M.K. Schwitzer. 1956. Margarine and Other Food Fats: Their History, Production and Use. New York, NY: Interscience Publishers, Inc. 385 p. See p. 59-78. Chap. 2. [52 ref]

• ***Summary:*** Tables: Table 8 (p. 67) shows margarine production in major countries worldwide in 1938, and 1946 to 1953. The countries are: United Kingdom, Australia, Canada, South Africa, British Caribbean, Austria, Belgium, Denmark, Finland, France, Germany, Israel, Japan, Netherlands, Norway, Poland, Soviet Union, Sweden United States. Production in these countries totaled 1,350,000 tons in 1938, dropping to 949,000 tons in 1946, then rising steadily to 2,618,000 tons in 1953. In 1938 Germany was by far the leading producer (439,000 tons), followed by United Kingdom (208,000), and USA (172,000). In 1953 the three largest producers were USA (577,000 tons), Germany (573,000), and United Kingdom (406,000). Holland was the world's largest margarine exporter.

Page 69: Graph of per capita consumption of margarine and butter in the UK and USA, 1938-1953. During this time, butter consumption decreased and margarine consumption increased in both countries. In the UK, per capita consumption of both margarine and butter are higher than in the USA, and margarine consumption passed that of butter in the mid-1940s.

Page 70: Estimated per caput consumption margarine in major countries worldwide in 1938, and 1946 to 1953. The countries are: United Kingdom, Australia, New Zealand, Canada, Norway, Netherlands, Sweden, USA, Finland, Denmark, Western Germany, and Belgium. Clearly Europeans, and especially those in Scandinavian or northern European countries, are the leading margarine consumers. In 1938 the leading countries were Denmark (47.4 lb/capita), Norway (141.2), and Sweden (10.5); USA was 2.9. In 1953 the leaders were Norway (51.1), Netherlands (40.8), and Denmark (40.1); USA was 7.9.

Page 71. Fats used in the production of margarine in the United Kingdom (1937-1953; soy oil started in 1951 and is insignificant). In 1938 UK margarines were made from 53% vegetable oils (groundnut was the leader, followed by coconut), 41% marine oils, and 6% animal fats. In 1953 UK margarines were made from 91% vegetable oils (groundnut was still the leader, followed by coconut), 8.8% marine oils, and 0.2% animal fats.

Page 72: Fats used in the production of margarine in the USA (1938-1953; soybean oil passed cottonseed oil in 1951). In 1938 U.S. margarines were made from 93.6% vegetable oils (cottonseed was the leader, followed by coconut then soybean oil), and 6.3% animal fats. In 1953 U.S. margarines were made from 98.9% vegetable oils (soybean oil was now the leader, followed by cottonseed), and 1.1% animal fats.

Page 73: Fats used in the production of margarine in certain countries (1937-1952) In 1951-53 soybean oil comprised the following percentage of all oils used to make

margarine is these countries: Australia 0%, Canada 50%, Denmark 5%, Netherlands 5%, Norway 3%, Sweden 0%.

Page 75: Production of cooking fat (shortening), 1938, and 1946-53, in the UK, Canada, Germany, and USA. World production of "lard substitutes" is considerably smaller than that of margarine, and the USA and the UK are the only major manufacturers. Total production in these countries grew from 868,000 tons in 1938 to 1,075,000 tons in 1953. In 1953 the leading producers were USA (748,000 tons), United Kingdom (209,000 tons), and Canada (61,000 tons). In Germany shortening is called *Plattenfett* and *Kunstspeisefett.*

Page 76. Fats used in the production of cooking fat in the UK (1937-1953; soy is not mentioned).

Page 76: Fats used in the production of cooking fat in the United Kingdom (1937-1953; soybean oil is not mentioned).

Page 77: Fats used in the production of cooking fat in the USA (1938 and 1946-1953; soybean oil had passed cottonseed oil by 1946). In 1938 U.S. shortenings were made from 91.7% vegetable oils (cottonseed was by far the leader, followed by soybean then palm oil), 8.2% animal fats, and 0.1% marine oils. In 1953 U.S. shortenings were made from 18.6% vegetable oils (soybean oil was now by far the leader, followed by cottonseed), and 16.2% animal fats (mostly lard). Address: Highgate, UK.

774. Fisher, John E. 1957. The effect of gravity on flowering of soybeans. *Science* 125(3244):396. March 1. [4 ref]
• ***Summary:*** Flambeau soybeans were made to grow downwards by placing lead weights around the stems. Inverted plants flowered earlier and at lower nodes than the control plants. Removing the suckers from inverted plants stimulated the earliest flowering, 22% of which took place about 15 days before it began in the control plants. The results are considered to support a theory of auxin control in flowering. Address: Botany and Plant Pathology Div., Science Serv. Bldg., Ottawa, ONT Canada.

775. *Soybean Digest.*1957. Market street and seed directory (Ad). Feb. p. 35.
• ***Summary:*** Soybean seedsmen and seed companies are listed alphabetically by state (and within each state alphabetically by city) in the following states: Arkansas, Illinois, Indiana, Iowa, Minnesota, Mississippi, Missouri, North Carolina, North Dakota, Ohio, South Carolina, South Dakota, Virginia, and Ontario (Canada). For each listing is given the amount and varieties of seed available, and whether certified, uncertified, or registered. Most of the entries are for individual farmers. Companies include: Jacob Hartz Seed Co. (Stuttgart, Arkansas, selling Lee, Jackson, Ogden, Dorman, JEW 45, Volstate, Mamloxi). L.B. Wannamaker Seed Co. (Box 194, St. Matthews, South Carolina, selling Lee, Jackson, CNS 24, JEW 45). T.W. Wood & Sons (Richmond, Virginia, selling Ogden, Early Wood's Yellow, Jackson, Lee).

Note 1. This the earliest listing in this directory for Wannamaker in South Carolina.

Note 2. This directory also appeared in the March 1957 issue (p. 38) of this magazine.

776. Dimmock, F. 1957. La fève soja au Canada [The soybean in Canada]. *Revue Internationale des Produits Tropicaux et du Materiel Tropical* 32(330):84-85, 89. April. [Fre]
• ***Summary:*** Gives an overview of soybean production in Canada and compares the suitability of different varieties. Address: Canada.

777. Deveza, Manuel Carneiro. 1957. Mais uma cultura para Moçambique [One more crop for Mozambique]. *Gazeta do Agricultor (Mozambique)* 9(96):140-42. May. [Por]
• ***Summary:*** This crop is the soybean. Trials conducted at the Embeluzi Experiment Station *(Estacao Experimental do Umbeluzi)* showed that soybeans yield from 1,800 to 2,400 kg/ha. Some 19 varieties were found to be good for forage, including Jubiltan 65, 67, and 77, Improved, Canadian, Charles, Laredo, Palmetto, Seminole, etc. Most soybeans have a long vegetative cycle, longer than 130 days. Some 13 varieties were found to give the best yields: Nigra, Seminole, Creole, Biloxi, Maxum, Palmetto, Avoyelles, Otootan, etc. Details on cultivation and inoculation are given.

Note: This is the 2nd earliest document seen (Aug. 2009) concerning soybeans in Mozambique, or the cultivation of soybeans in Mozambique. Address: Eng. Agrónomo, Da Estacao Experimental do Umbeluzi.

778. Sims, R.P.A. 1957. Possible mechanisms in thermal polymerization of vegetable oils. II. Polymer formation. *J. of the American Oil Chemists' Soc* 34:466-69. Sept. [16 ref]
• ***Summary:*** Oils studied included linseed, sunflower, alpha tung, beta tung, and oiticia. "The hydrogenation data indicate that more than one double bond per molecule can be consumed during polymerization." Address: Chemistry Div., Science Service, Dep. of Agriculture, Ottawa, Canada.

779. Macmorine, Hilda G. 1957. Some factors influencing the production of certain biosynthetic penicillins. *Applied Microbiology* 5(6):386-91. Nov. [6 ref]
• ***Summary:*** Soya bean oil is used as an antifoam agent. Address: Connaught Medical Research Labs., Univ. of Toronto, Toronto, Canada.

780. *Soybean Digest.*1957. Crest a new early soybean variety. Nov. p. 17.

• ***Summary:*** Crest is a new, early maturing, high oil-content soybean variety, developed at the Central Experimental Farm in Ottawa, Canada. Tests conducted at the Branch Experimental Farm at Morden, Manitoba, Canada, indicate that Crest is well adapted to southern Manitoba. It matures 3-4 days than Kabott and 4-7 days earlier than Flambeau.

781. USDA Agricultural Marketing Service. 1957. Soybean variety names. Washington, DC. 31 p. Nov. Supplement 1 to Service and Regulatory Announcements No. 156 "Rules and Regulations Under the Federal Seed Act."

• ***Summary:*** The title page states: "Included in Sec. 201.34(e) of the Regulations Under the Federal Seed Act and Descriptions." At the bottom of the "Contents" page is written: Supersedes mimeographed publication "Soybean Varieties" issued by the former Publication and Marketing Administration, U.S. Department of Agriculture, revised July 1953."

Contents: Introduction. Map showing maturity group areas. Description of varieties. Synonyms of variety names. List of obsolete or seldom grown varieties.

Description of varieties: Acadian, *Acme (Canada. * = Also the name of an old variety which is believed to be no longer in existence), Adams, Agate, Aoda, Arisoy, Arkan, Arksoy, Arksoy 2913, Armredo, Avoyelles, Bansei, Barchet, Bavender Special, Biloxi, Blackhawk, Boone, Capital (Canada), Cayuga, Chame, Charlee, Cherokee, Chief, Chippewa, Chusei, Clark, Clemson, CNS, CNS-4, CNS-24, Comet (Canada), Creole, Cypress #1, Delsoy, Delsta, Dorman, Dortchsoy #31, Dortchsoy #67, Dunfield, Earlyana, Easycook, Ebony, Emperor, Etum, Flambeau, Funk Delicious, Gatan, Georgian, Giant Green, Gibson, Goldsoy (Canada), Granger, Grant, Habaro, Haberlandt, Hahto, Hakote, Hardome (Canada), Harly (Canada), Harman (Canada), Harosoy (Canada), Hawkeye, Hayseed, Herman, Hidatsa, Higan, Hokkaido, Hongkong, Illini, Imperial, Improved Pelican, *Jackson, JEW 45, Jogun, Kabott (Canada), Kanrich, Kanro, Kanum, Kim, Kingwa, Korean (Canada), Kura, Laredo, Lee, Lincoln, L.Z., Macoupin, Magnolia, Mamloxi, Mammoth Brown, Mammoth Yellow, Mamotan, Mamredo, Manchu, Manchu No. 3, Manchu No. 606, Manchukota, Mandarin, Mandarin No. 507, Mandarin (Ottawa) (Canada), Mandell, Mendota, Mingo, Minsoy, Missoy, Monetta, Monroe, Montreal Manchu (Canada), Morse, Mount Carmel, Mukden, Nanda, Nanking, Norchief, Norsoy, Ogden, Ontario, Otootan, Pagoda (Canada), Palmetto, Patoka, Peking, Pelican, Pennsoy, Perry, Pridesoy No. 57, Ralsoy, Renville, Richland, Roanoke, Rokusun, Rose Non Pop, S-100, Sac, Sato, Scioto, Seminole, Seneca, Sioux, Smith Super, Sousei, Tanner, Tastee, Tennessee Non Pop, Tokyo, Viking, Virginia, Volstate, Wabash, Willomi, Wilson, Wisconsin Black, Wolverine, Woods Yellow, Yellow Gatan, Yelnando, Yelredo.

Synonyms of variety names (p. 24; Synonym -> Official variety name): Austrian Green -> Tokyo. Bakaziro -> Amherst. Banner -> Midwest. Bell -> Midwest. Best Green -> Hope. Best White -> Amherst. Black -> Buckshot. Black Beauty -> Ebony. Black Champion -> Peking. Black Sable -> Peking. Bopp -> Chernie. Brown -> Mammoth Brown. Brown Biloxi -> Biloxi. Brown Eda Mame -> Eda. Brown Otootan -> Tanner. Buster Brown -> Trenton. Cha Daidzu -> Eda. Clay -> Midwest. Claybank -> Midwest. Clemson Non-shattering -> CNS. Cluster Bean -> Midwest. Coker's 31-15 -> Pee Dee. Columbian -> Columbia. Dortchsoy-2 -> Ogden. Dwarf Brown -> Ogemaw.

Dwarf Early Yellow -> Ito San. Dwarf Green -> Medium Green. Early Black -> Wisconsin Black. Early Green -> Medium Green. Early Indiana Laredo -> Norredo. Early Japan -> Butterball. Early Korean -> Korean. Early Laredo -> Norredo. Early Mammoth Black -> Buckshot. Early Mandarin -> Mandarin. Early Virginia Brown -> Virginia. Early White -> Ito San. Early Wilson -> Wilson. Early Wilson Black -> Wilson. Early Wisconsin Black -> Wisconsin Black. Early Wood's Yellow -> Arksoy. Early Yellow -> Ito San. Eda Mame -> Ito San, Eda. Edsoy -> Delsoy. Essex -> Peking. Etampes -> Ito San. Evan's Crossbred No. 9 -> Ogemaw. Extra Early Black -> Wisconsin Black. Extra Early Black Eyebrow -> Black Eyebrow. Extra Select Sable -> Peking.

Feeser's Prolific -> Midwest. Flat Black -> Flat King. Foster's Prolific -> Midwest. Galloway -> Midwest. German Coffee Berry -> Ito San. Giant Brown -> Mammoth Brown. Giant Yellow -> Butterball. Gosha -> Manhattan. Green -> Medium Green. Green Field -> Illini. Green Samarow -> Samarow. Guelph -> Medium Green. Hale-Ogden 2 -> Ogden. Hollybrook Early -> Midwest. Ignotum -> Ogemaw. Illinois 13-19 -> Ilsoy. Illinois Champion -> Midwest. Indiana Hollybrook -> Midwest. Ita Mame -> Tokyo. Japan No. 15 -> Kingston. Japan Pea -> Ito San. Kiyusuke Daidzu -> Ito San. Kysuki -> Ito San. Large Black -> Buckshot. Large Brown -> Mammoth Brown. Large Yellow -> Mammoth Yellow.

Late -> Mammoth Yellow. Late Ita Mame -> Tokyo. Late Yellow -> Mammoth Yellow. Lima Soy -> Hahto. Mammoth -> Mammoth Yellow. Mammoth Black -> Tarheel Black. Mamotoc -> Tokyo. Manchuria -> Pinpu. Medium Black -> Buckshot. Medium Early Black -> Buckshot. Medium Early Brown -> Early Brown. Medium Early Green -> Medium Green. Medium Early Yellow -> Ito San. Medium Ita Mame -> Tokyo. Medium Yellow -> Midwest. Michigan Green -> Medium Green. Midwest Free -> Midwest. Minnsoya -> Monsoy [Minsoy?]. Mongol -> Midwest. New Bush Bean -> Midwest. New London -> Midwest. Northern Hollybrook -> Midwest. Ogema -> Ogemaw. Ohio Champion -> Midwest. Ohio Medium Green -> Medium Green.

Ohio 9035 -> Hamilton. Oloxi -> Coker's Black Beauty. Pedigreed Sable -> Peking. Pekwa -> Kingwa. Perley's Mongol -> Midwest. Premier -> Midwest. Prolific -> Midwest. Purredo -> Norredo. Rattlesnake -> Taha. Red Otootan -> Tanner. Red Sable -> Peking. Red Tanner -> Tanner. Roosevelt -> Midwest. Roosevelt Medium Early Yellow -> Midwest. Round Black -> Buckshot. Royal -> Wilson-Five. Sable -> Peking. Shanghai -> Tarheel Black. Siegenthaler -> Morse. Southern -> Mammoth Yellow. Southern Medium Green -> Tokyo. Soy Good -> Etum. Super Quick -> Sousei. Tarheel -> Tarheel Black. Tarheel Brown -> Mammoth Brown. Vanderburg Black -> Norredo.

Virginia Brown -> Virginia. Virginia Early Brown -> Virginia. Wilson Black -> Wilson. Wilson Early -> Wilson. Wilson Early Black -> Wilson. Wings Royal -> Peking. Wisconsin Early Black -> Wisconsin Black. Wisconsin Early Brown -> Early Brown. Wisconsin Early Green -> Medium Green. Wonder -> Midwest. Wyokatenn -> Yokoten. Yamagata Cha-daidzu -> Eda. Yellow -> Mammoth Yellow. Yellow Eda -> Ito San. Yellow Etampes -> Ito San. Yoko -> Yokoten. Yokotenn -> Yokoten. Yoshioko -> Yosho.

Obsolete or seldom grown varieties (p. 30): Acme* (* = Also the name of a Canadian variety released in 1953), A.K., A.K. Harrow, Aksarben, Aksawa, Allison Black, Amherst, Arlington, Auburn, Austin, Baird, Black Eyebrow, Brindle, Brooks, Brown Eda Mame, Brownie, Buckshot, Butterball, Chernie, Chestnut, Chiquita, Cloud, CNS-3, Columbia, Delaware No. 1838, Delaware No. 1846, Delnoshat, Delredo, Dixie, Doxie, Duggar, Early Brown, Early White Eyebrow, Eda, Edgecombe, Edward, Elton, Etampes, Extra Early Black, Extra Early Wood's Yellow, Fabulin, Fairchild, Farnham, Flat King, Flava, Fuji, Funman, Gala, George Washington, Giant Yellow, Goku, Goshen Prolific, Green and Black, Hamilton, Hankow, Hansen, Harbinsoy, Hiro, Hollybrook, Hoosier, Hope, Hudson Manchu, Hurrelbrink, Illington, Illinois 178, Ilsoy, Imported Yellow, Ito San, Ito San Cross, Jackson** (** = Also the name of a United States variety released in 1953), Jet, Jefferson, Kagon, Kentucky, Kenua, Kingston, Lexington, Looney No. 2, Lowrie, Loxitan, Luthy, Manhattan, Manitoba Brown, Mansoy, Medium Green, Merko, Meyer, Midunk, Midwest, Mikado, Misstuck, Morgan, Nanksoy, Nansemond, Natsu, Nemo Sonoma, New Deal, Nielson [Nielsen], Nigra, Norredo, Nuttall, O.A.C. No. 211, Ogemaw, Ohio 9001, Okute, Old Dominion, Osaya, Ozark, Pee Dee, Pinedell, Pine Dell Perfection, Pingsu, Pinpu, Pluto, Pocahontas, Preston, Riceland, Samarow, Sangra, Sedo, Sherwood, Shingto, Shiro, Sonoma, Sooty, Southern Green, South Prolific, Soysota, Stuart, Suru, Swan, Taha, Tanloxi, Tarheel Black, Tashing, Thurnoko [Tsuronoko?], Toku, Toyonago, Trenton, U.S. 2, U.S. 5, Verea, Vireo, Waseda, Watson Black, Wea, White Biloxi, White Eyebrow, Wilson-Five, Wing Jet, Yellow Marvel, Yellow Reisen [Yellow Riesen], Yokoten, Yosho.

Note: This is the earliest document seen (July 2000) that mentions the soybean variety Fabulin. Address: Washington, DC.

782. **Product Name:** Tofu.
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 300 Powell St., Vancouver, BC, V6A 1G4, Canada. Phone: 604-685-8019.
**Date of Introduction:** 1957.
**New Product–Documentation:** Shurtleff & Aoyagi. 1977. Jan. 28. Commercial Tofu Shops and Soy Dairies.

Shurtleff & Aoyagi. 1978, Dec. *The Book of Tofu* (Ballantine pocketbook edition). "Appendix B: Tofu Shops and Soy Dairies in the West." p. 399. Owner: Mr. Leslie Joe.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owner: Mr. Leslie Joe.

Talk with Michael Weiner. 1987. June 12. Sunrise in Vancouver has a history going back to the 1950s, and is the largest tofu manufacturer in Western Canada. Mandarin is second largest. He will ask Sunrise to send me a history. Another talk. Dec. 16. Peter Joe is the present owner of Sunrise. His father, Leslie Joe, started making tofu in the 1950s. Letter from Peter Joe. The company started to make soyfoods in 1955. Form filled out by Peter Joe. 1988. May 20. Gives date as 1960. Apparently company started in 1955 but did not make tofu until 1960? In 1984 the company moved to 729 Powell St.

Talk with Peter Joe. 1993. March 12. This company was started in about 1955 by his father's uncle. His father (Leslie Joe, who lives nearby) started to work for the company in about 1956-57. In about 1957 Leslie Joe took over the company. Peter does not know the name of the company at the time it was founded; it may have had a Chinese name but no English name. The company was at some other address on Powell Street initially (such as 360 Powell St.) before it moved down to 300.

Note: This is the earliest known commercial soy product made by Sunrise Market Ltd.

783. Snow, W.W. 1958. Crop sequence effects on soybeans. MSc thesis in agriculture, University of Toronto, Ontario, Canada. 54 p. Jan. 28 cm. [23 ref]
• ***Summary:*** "When introduced into Ontario, soybeans were considered to be a high protein livestock feed with little value as a cash crop. The development of the vegetable oil industry in Ontario and the general use of the combine harvester have given impetus to greatly increased production. At the present time only grain corn is regarded as a more important cash crop in the south-western section of the Province."

This is a study of the effect of the previous crop, of fertilizer use, and of crop rotations on soybeans. Crop rotation was found to increase soybean yields. Address: Toronto, Ontario, Canada.

784. *Soybean Digest.*1958. The news in brief: Crops, markets and other items of note. Feb. p. 11-12.
• ***Summary:*** This is a new section of *Soybean Digest,* printed on 2 pages of green paper in each issue. In a box below the title we read: "This issue introduces to our readers 'The News in Brief,' which will be made up at the last possible minute before press time to include the latest information.

"Together with 'Washington Digest,' by Porter Hedge, 'In the Markets' section in the back, and a monthly crop report during the growing and harvesting season, 'The News in Brief' will be part of the continuing earnest effort of your editors to provide the most complete and thorough coverage of the soybean crop and markets and soybeans generally to be had anywhere.

"Late News, which has appeared in these pages, will no longer be part of the Soybean Digest. It will be mailed only to its subscribers.

"We believe this change will improve service both to Digest and Late News readers–The Editors."

Contents of this first section: Freight increase postponed. Oil content not quite so good. Some beans never harvested. Some high moisture beans. Meal production up a little. Canadians want tariff on beans. Stocks of soybean oil up. Japanese short of soybeans. Prices of oilseeds and fats, cif Rotterdam [Netherlands] and Hamburg [Germany], week of Jan. 25 (dollars per metric ton). Sixteen oils are listed. Reported by Albrecht H. Zetsche, Hamburg, Germany.

785. Carter, C.F.; Cuthbert, N. 1958. World commodity survey. *Times Review of Industry (London).* April. p. 89, 91-92. [1 ref]
• ***Summary:*** A large table of commodity prices (p. 89) gives prices for "Soyabean oil" (in £/ton; 2 ton lot ex mill) in the UK at various dates: 1934-1938 average: £20. March 1937: £133. 14 Feb. 1958: £115. 21 March 1958: £109.

The section titled "Fats and oils" states that world production of fats and oils is a little more than 29 million metric tons, or about 5% per capita more than before World War II. Edible vegetable oil production increased by almost 10% during the past year. "The 1957 increase was well spread; there were large crops of peanuts in French West Africa and in India, and good crops of soyabeans in the United States, of sunflower seed in Argentina and the U.S.S.R., of rapeseed in China and Canada, and of olive oil in the Mediterranean countries. The output of cottonseed oil, on the other hand, declined..."

786. Amaral, C.J.; van Veen, A.G. 1958. Appendix: National average food supplies. In: A.M. Altschul, ed. 1958. Processed Plant Protein Foodstuffs. New York: Academic Press. xv + 955 p. See p. 893-96. [2 ref]
• ***Summary:*** Table 1 shows the estimated per capita consumption of animal and vegetable protein in all countries which maintain food balance sheets (47 countries are listed with the total population and the consumption of animal and of vegetable protein, in grams per person per day). Fig. 1 is a map of the world that shows the caloric content of national average food supplies. There are four categories: 1. Over 2,700 calories per capita per day (includes most industrialized countries). 2. Between 2,700 and 2,200 calories. 3. Under 2,200 calories. 4. Data not available. Figure 2 is a pie chart (dated Nov. 1952) showing that 58% of the world's population consumes lass than 15 grams per person per day of animal, 17% consumes 15-30 grams, and 25% consumes over 30 grams. Table II shows estimated protein consumption of the world population. Address: 2. Nutrition Div., FAO, Rome, Italy.

787. Brown, Donald Murray. 1958. A phenological study of soybeans in Iowa and Ontario, Canada. PhD thesis, Iowa State University. 94 p. Page 402 in volume 19/03 of Dissertation Abstracts International. *
Address: Iowa State Univ., Ames, Iowa.

788. *FAO Monthly Bulletin of Statistics.*1958—. Serial/periodical. Rome, Italy: Food and Agricultural Organization of the United Nations. Yearly. ca. 350 p. *

789. *FAO Production Yearbook.*1958—. Serial/periodical. Rome, Italy: Food and Agricultural Organization of the United Nations. Yearly. ca. 350 p. Supersedes the Yearbook of Food and Agricultural Statistics, Part I (1947-1957), which was superseded by Production Yearbook (1958-1975).
• ***Summary:*** Under soybeans, gives region/continent and nation, then statistics for soybean area, production, and yield for each soybean producing nation during the following time periods: 1948-1952, 1955, 1956, 1957. Regions and nations listed in the 1958 edition are: Europe: Czechoslovakia, Hungary, Italy, Romania, Yugoslavia.

U.S.S.R.

North and Central America: Canada, United States.

South America: Argentina (in 1948-52 1,000 hectares produced on average 1,000 metric tons of soybeans per year. This remained unchanged in 1955-1957), Brazil (in 1948-52 53,000 hectares produced on average 57,000 metric tons of soybeans per year. Production rose to 115,000 metric tons in 1955, 122,000 in 1956, and 132,000 in 1957).

Asia: Cambodia, China-Mainland, China-Taiwan, Indonesia-total (Java and Madura, Other islands), Japan,

Korea-South, Philippines, Ryukyu Islands, Thailand, Turkey.

In 1948-52, Turkey produced 2,000 metric tons of soybeans on 2,000 ha; yield: 860 kg/ha. Production in Turkey increased to 4,000 metric tons in 1955, then 5,000 metric tons in 1956. Note: This is the earliest document seen (Dec. 2007) that gives soybean production or area statistics for Turkey or for the Middle East. This document contains the earliest production or area statistics seen for Turkey or the Middle East.

Africa: Belgian Congo (production in villages), Ethiopia and Eritrea (Fed. of Ethiopia) (starting with 5,000 tonnes {metric tons} in 1948-1952), Nigeria (Fed. of), Rhodesia and Nyasaland (Fed. of Nyasaland), Ruanda-Urundi (production in villages), Tanganyika, Uganda (recorded sales), Union of South Africa (farms and estates).

World total (excluding U.S.S.R.). Regional totals: Europe, North America, Latin America, Near East, Far East, Africa.

Note that statistics for given years (e.g. 1948-52) may change as time passes; apparently this yearbook is periodically updating its statistics.

790. Haldeman, Robert C. 1959. Potential effects of St. Lawrence Seaway on costs of transporting grain *Marketing Research Report (USDA Agricultural Marketing Service)* No. 319. 149 p. April.
• ***Summary:*** Contents: Summary. Introduction. Grain production–Great Lakes–St. Lawrence waterway tributary area: Wheat, corn, barley, soybeans, other grains. Characteristics of inland grain movements to interior and port destinations. Export grain movements: Wheat, corn, barley, soybeans and soybean oil, other grains. Potential export volume via the St. Lawrence Seaway. The Great Lakes- St. Lawrence waterway. Physical limitations of the waterway: Season of navigation, capacity of the Welland Canal, relationship of estimated traffic volume to capacity, capacity of the St. Lawrence Seaway locks, other physical limitations. Enabling legislation and seaway tolls: The Wiley-Dondero Act of May 13, 1954, The St. Lawrence Seaway Authority Act (of Canada), December 21, 1951. Grain handling expenses. Transportation costs and charges: motortrucks, railroads, inland waterways, Great Lakes, ocean transportation, liberty-type vessel, lake-ocean bulk carrier, comparative costs and charges. Summary of computed costs and charges on grain from interior points to foreign ports. Summary of computed costs and charges on grain to Atlantic Coast ports and tributary areas. Appendix. Address: Transportation Economist, Marketing Research Div., Agricultural Marketing Service, USDA, Washington, DC.

791. *Times (London).*1959. No U.S. transit for Chinese shrimps: Canadian lorries held up. Customs ruling. May 4. p. 10, col. 5.
• ***Summary:*** "From a correspondent in Ottawa, Canada." The United States Customs office prohibited Canadian lorries carrying Chinese goods (including "soya sauce and herbs") from Vancouver, B.C., from using U.S. roads due to American legislation concerning trade with China. There are no roads yet in British Columbia or Alberta suitable for shipping huge refrigerated vehicles.

792. Hedge, Porter M. 1959. Washington Digest: Seaway offers cheaper trade route abroad. *Soybean Digest.* May. p. 38, 40.
• ***Summary:*** "Soybeans will be able to move to Europe and the Mediterranean and Middle Eastern areas at rate 12¢ to more than 20¢ a bushel cheaper through the newly opened St. Lawrence Seaway." "Minimum channel depth of 27 feet will be completed by midyear between Lake Ontario and Montreal [Quebec] and Lake Ontario and Lake Erie."

Oil outlook. Big crush (Oil may be shipped late to Spain and Turkey. Argentina wants edible oil. "Nearly 140 million bushels have been put under price support through March 31... A substantial part of the crush of soybeans during the summer months will have to come from beans under loan, officials feel. CCC takes over soybeans on May 31. The announced sale price is the 1959 loan rate plus 5%").

"Humphrey Bill: The food for peace program advocated by Senator Humphrey of Minnesota is now in bill form and introduced in the Senate. It provides for a 5-year program similar to P.L. 480 and would authorize the use of $2 billion worth of surplus commodities a year. About $1½ billion are now being used."

"There is little chance of the Humphrey bill becoming law this year or next. USDA is opposed to a longtime program of the P.L. 480 type, but considers it useful as an emergency program."

A portrait photo shows Porter M. Hedge. Address: Washington Correspondent for the Soybean Digest.

793. Kairys, Stepas; Meade, E.M.; Munns, W.O.; Walder, D.A. Assignors to Canada Packers Limited (Toronto, Ontario, Canada). 1959. Process for fractionation of fatty acid mixtures. *U.S. Patent* 2,895,976. July 21. 7 p. Application filed 9 July 1956. 2 drawings. [4 ref] Address: 1,3-4. Toronto, Ontario, Canada; 2. Richmond Hill, Ontario, Canada.

794. Gantt, B.J. 1959. Buckeye manufacturing history. [Memphis, Tennessee]. 21 p. Unpublished manuscript. Corrected by the author in Aug. 1959. 28 cm.
• ***Summary:*** The story began when Procter & Gamble Co. created/established Buckeye. "The Buckeye Cotton Oil Company had its beginning in the year 1901 when its parent company, The Procter & Gamble Company, leased a cotton

oil mill at West Point, Mississippi, for one year in order to experiment with getting a steady supply of oil for P&G products. The experiment proved to be a wise one. The Buckeye Cotton Oil Company was incorporated in 1901. William Cooper Procter actively sponsored the business from the beginning. In 1902, The Buckeye Cotton Oil Company bought two six-press mills at Birmingham, Alabama, and Greenwood, Mississippi. With the purchase of these two mills, the first Buckeye General Manager was appointed.

"In 1903, mills were constructed at Augusta and Macon, Georgia; Jackson, Mississippi; Little Rock, Arkansas; and Selma, Alabama. The following year the Greenwood mill was practically rebuilt. The old mill at West Point later burned. In 1910, the press capacity of all the mills, with the exception of Charlotte, was increased to 12. Also during this year, the first mill laboratory was installed in the Birmingham mill. It was later made a division laboratory and moved to Atlanta." In 1929 the company bought the Hollywood Mill in Memphis, Tennessee, and mills in Louisville, Kentucky, and Chattanooga, Tennessee.

"In the fall of 1958, the company decided to sell four of its soybean processing mills to the Ralston-Purina Corporation." A P&G news release describing the sale is quoted at length. "The mills involved in the transaction are at New Madrid, Missouri; Louisville, Kentucky; Raleigh, North Carolina; and the Binghampton mill at Memphis, Tennessee.

"The sale of these mills, which virtually takes the company out of the soybean crushing business in this country, has resulted from changes which have taken place in marketing the end products from the soybean crushing operation.

"Buckeye's principal reason for crushing soybeans has been to supply soybean oil for Procter & Gamble food products... The company will continue to operate its seven crushing mills at Augusta, Georgia; Ft. Worth, Texas, Corinth, Mississippi; Montgomery, Alabama; Little Rock, Arkansas; Memphis, Tennessee (Hollywood Mill) and Toronto, Canada.

"This drastic reduction in the number of operating mills brought about several major problems. First, how to deliver to the Ralston organization the four soybean mills in the middle of an operating season–December 1, 1958."

Note: This news release was reprinted 4 Nov. 1958 issue of the *State Times* (Jackson, Mississippi).

"New Methods of Unloading: Around 1940, truck dumpers were being improved and the first installation was made at one of the mills whereby a load of from 15 to 18 tons could be unloaded within a few minutes... In the rapid increase to soybean usage, a much larger percentage of those were still received at the Louisville Mill by rail. Because of this problem, in 1957 a car vibrator-type unloader was installed at Louisville. This was the latest development for unloading soybeans from rail cars and will unload a 50-ton car in three or four minutes.

"Solvent Extraction Process–First for Soybeans: The solvent extraction process was invented by the Germans to use gasoline, or hexane, to get the oil out of the cottonseed and soybeans. It was the first process to replace the traditional hydraulic pressure in extracting oil. The machine for solvent extraction was patented. This patented unit, bought by Proctor & Gamble from Hans-Muhle was on the docks at Hamburg, Germany, awaiting shipment when the war broke out in 1939. Because of the blockade, it never left Germany. The only way to make-do was to go to the French Oil Mill Machinery Company in Piqua, Ohio, and try to have a similar unit built. As this was designed and built to Buckeye's specifications all of the other features on the solvent extraction tower were worked out by Buckeye including the 'basket on a ferris wheel' for holding the meats. A year's experimental work was done at the Louisville Mill and we finally began processing soybeans by solvent extraction at Louisville in 1941. The experience gained in Louisville permitted us to develop sufficient confidence to proceed with installations of solvent extraction units for cottonseed."

"Many improvements have been made to both equipment and solvent extraction processes for seed and soybeans and in 1958, 95% of all soybeans in Buckeye were processed by the solvent extraction method and 68% of the cottonseed also is processed on this type of equipment.

"Soybean Crushing: Buckeye crushed the first soybeans on expellers at the Louisville Mill in 1931-32. In 1935-36, Binghamton at Memphis also processed a sizable quantity of 28,000 tons of soybeans. Louisville, that same year (1936) crushed about 15,000 tons. Since the 1937-38 season, Binghamton was changed to process soybeans only, with all cottonseed being diverted to the Hollywood Mill in Memphis. The next year, 1938-39, Raleigh started crushing soybeans. Since that time, practically all mills have processed some beans and in 1958 the division of bean and seed crushing is about as follows: Crushing Soybeans Only: Louisville Mill (solvent extraction), Binghamton Mill (solvent), New Madrid, Missouri Mill (solvent). Crushing Soybeans and Cottonseed: Augusta, Georgia Mill (solvent), Little Rock, Arkansas Mill (solvent), Hollywood Mill (solvent), Raleigh, North Carolina Mill (started solvent–4/1/59)... With the advent of soybeans, 1931-32, the per cent of the total crush in soybeans has been increasing every year. In the fiscal year which ended on 30 June 1958, Buckeye processed 240,000 tons cottonseed (this does not include Traders Oil Mill, Ft. Worth, Texas, which crushed about 44,000 tons of cottonseed). In the same fiscal year, Buckeye processed 522,000 tons of soybeans.

"Soybean Protein: In the fall of 1946, Proctor & Gamble needed a raw material to use in the new formula of Spic and Span. It was found that a protein product that

could be made from soybeans at Louisville would supply this demand. As a result, a protein unit [for making industrial-grade isolated soy protein] was erected at the Louisville Mill and adequately took care of the Proctor & Gamble needs.

"After a few years, the Spic and Span formula was changed again so there was less need for this protein product and it was necessary to develop outside markets where it was used largely as a substitute for casein in the paper trade.

"One of the most interesting developments in the processing of soybeans recently has been the advent of 50% protein low-fiber soybean meal. This is a premium product usually selling from $7 to $8 a ton over the regular soybean meal market, and is in great demand by the poultry trade. Buckeye started producing 50% soybean meal at Louisville and Binghamton Mills in 1956-57."

Talk with Ed Rider, corporate archivist, Procter & Gamble Co. (who located and sent this valuable document). 1993. July 15. When B.J. Gantt wrote this history he was probably residing and working in Memphis, Tennessee, which is where P&G's Buckeye subsidiary was headquartered. Address: Vice President and Superintendent of Manufacture, Buckeye [Memphis, Tennessee].

795. Canada–Dominion Bureau of Statistics, Agriculture Div., Crops Section. 1959. Handbook of agricultural statistics. Part I–Field crop. Historical series of acreage, production, and value, by provinces, of Canada's principal field crops with supplementary data on the supply and disposition of the major grain crops. Ottawa, Canada: Queen's Printer and Controller of Stationery. See p. 110-11. Sept.
• ***Summary:*** Under soybeans, statistics are given for Canada, Ontario, and Manitoba, concerning crop year, seeded acreage, average yield per seeded acre, production (bushels), average farm price, and total farm value. The earliest year given for soybean production in Canada and Ontario is 1941-42, when 10,900 acres were planted, yielding 217,000 bushels, or 19.9 bu/acre. The total farm vale that year was $1,509,000.

The earliest year given for soybean production in Manitoba is 1956-57, when 3,200 acres were planted. They yielded 32,000 bushels. In the peak year, 1958-59, 7,000 acres yielded 70,000 bushels. No figures are given after the year 1960-61, when only 6,000 bu were produced on 500 acres. Address: Canada.

796. Lemon, H.W. 1959. An historical survey of fats and oils research in Canada. *J. of the American Oil Chemists' Soc.* 36(9):420-24. Sept. Symposium on fifty years of fat and oil research in selected countries of the world. [57* ref]
• ***Summary:*** Contents: Introduction. Fisheries Research Board of Canada. The Ontario Research Foundation. Macdonald College, McGill University (Montreal, Quebec). The National Research Council Laboratories: Division of Applied Biology, Div. of Pure Chemistry, Prairie Regional Laboratory at Saskatoon. The Food and Drug Laboratories, Department of National Health and Welfare. The Department of Agriculture. The Universities (incl. Dr. K.K. Carroll at Univ. of Western Ontario). The Canadian Committee on Fats and Oils (est. Dec. 1944).

"Organized fats and oils research in Canada began at the Fisheries Experimental Station at Prince Rupert, B.C., in the late 1920's under the guidance of H.M. Brocklesby... Much progress has been made by the plant breeders... Better soybean varieties have been developed, and this crop has increased from 200,000 bu. in 1941 to 6½ million bu. in 1957. Most of the soybean crop is in Ontario, but an earlier-maturing variety is now being grown in Manitoba." Address: Dep. of Biochemistry, Ontario Research Foundation, Toronto, Canada.

797. Perkins, Harold J.; Nelson, C.D.; Gorham, Paul R. 1959. A tissue-autoradiographic study of the translocation of $C^{14}$-labelled sugars in the stems of young soybean plants. *Canadian J. of Botany* 37(5):871-77. Sept. [21 ref]
• ***Summary:*** "Autoradiography was used to determine the tissues involved in the downward translocation of carbon-14 labelled photosynthate and of carbon-14 labelled glucose, fructose, or sucrose introduced into soybean plants through the cut petiole of a primary leaf."

"This comparative study has demonstrated that all translocation need not take place in the phloem, but some may take place in such tissues as pith and xylem."

Note: The cross section of the stem of a typical vascular plant (such as the soybean) has pith at the center, xylem around that, phloem around that, followed by schlerenchyma, cortex, and epidermis (the outer layer, or bark in trees). Xylem and phloem are both types of transport tissue. Phloem is living tissue that carries organic nutrients (known as photosynthate), particularly sucrose, a sugar, to all parts of the plant where needed. Address: Div. of Applied Biology, National Research Council, Ottawa, Ontario.

798. Smith, Allan K. 1959. Research on the increasing use of U.S. soybeans in Japan. *Soybean Digest.* Sept. p. 62-65.
• ***Summary:*** "In 1956 the American Soybean Association in collaboration with the Foreign Agricultural Service of the U.S. Department of Agriculture started a market development program on soybeans in Japan."

Late in 1957 Dr. Smith "spent 2 months in Japan studying the products and processes where U.S. soybeans are competing with Japanese and communist Chinese beans." He found that the traditional foods of Japan are processed from whole soybeans, whereas in the USA the use of whole soybeans has, until recently, "received no commercial recognition for food, feed, or industrial

application. Also the traditional food processors of Japan value the protein more highly than the oil which is the reverse of the emphasis in this country."

The results of Dr. Smith's investigations were published in April 1958 under the title "Use of United States soybeans in Japan." "The problems raised by the Japanese are briefly summarized as follows: 1–Composition: It was generally stated that Japanese soybeans are higher in protein than our soybeans. 2–U.S. soybeans are slower to absorb water than Japanese beans and absorb water unevenly. 3–Our soybeans cook unevenly and consequently they may not support uniform fermentation. 4–Products from U.S. soybeans are darker in color than those made from Japanese soybeans. 5–Food products from U.S. beans do not have as good a flavor as from Japanese soybeans. 6–The Japanese do not like the amount of foreign matter, split and broken beans, and other crop material in U.S. soybeans.

Following Dr. Smith's investigation in Japan, a research project was initiated at the Northern Regional Research Laboratory in Peoria, Illinois. The immediate objectives of the project are: 1–To investigate the reported differences between U.S. and Japanese soybeans and to evaluate their significance. 2–To compare approximately 30 U.S. and 6 Japanese soybean varieties in miso and tofu, two most important Japanese foods, and to determine which U.S. varieties are suitable for making these foods. 3–To study the processing methods used by the Japanese and to modify their processes for better adaption [adaptation] of our soybeans to their use...

"Two Japanese scientists, Tokuji Watanabe and Kazuo Shibasaki, accepted invitations to come to the Northern Laboratory to work on these projects."

In the 9 months that Dr. Shibasaki and Mr. Watanabe spent at the NRRL they made progress on all the 6 problems listed, though the project is still underway. They found two U.S. soybean varieties, Jackson and Lee, that make tofu very similar to that made from Japanese soybeans. Other promising varieties are Blackhawk, Comet, Dorman, Ottawa, Mandarin, and Acme.

"Composition: It was reported, and generally assumed to be true, that Japanese soybeans were higher in protein and lower in oil than U.S. soybeans. We have accumulated data (all on a moisture-free basis) to determine whether this report is true. Table 1 shows the protein and oil content of eight Japanese soybean varieties grown in various parts of Japan during 1957 or 1958. The name often indicates the area grown: Aomori, Hokkaido Akita, Kumamoto, Miyagi, Nagano, Hagi-Dani, Hokuho, and White Hilum Iwate. These 8 Japanese varieties contained an average of 40.5% protein and 17.2% oil in 1957 and 42.3% protein and 16.8% oil in 1959.

Table 2 shows the protein and oil content of 15 U.S. [and Canadian] soybean varieties grown in various parts of the USA during 1956, 1957 or 1958: Acme, Adams, Blackhawk, Chippewa, Clark, Comet-1, Comet-2, Dorman, Dortchsoy, Harosoy, Hawkeye, Jackson, Lee, Lincoln, and Norchief. These 15 U.S. varieties contained, on average, 41.8% protein in 1956, 40.1% in 1957, and 40.7% protein and 20.2% oil in 1958. Comparing these two tables, Dr. Smith concludes that U.S. and Japanese soybeans contain about the same amount of protein, but that U.S. field-type soybeans contain about 3.7% more oil than Japanese soybeans.

Table 3 shows the maturity group, protein and oil content, and weight in grams of 100 seeds for 33 recommended U.S. and Canadian varieties. This data is based on Cooperative Uniform Soybean Tests. These 33 varieties are grown in all the major soybean growing areas of the USA; Groups 00 to IV inclusive are grown in the North Central States, approximately north of Cairo, Illinois, to northern Minnesota; groups V to VIII inclusive are grown south of Cairo. The 33 varieties, sorted by ascending maturity group, and within each group alphabetically by varietal name are: Acme (00, Canadian), Crest, Flambeau, Capital (0), Comet, Grant, Mandarin, Norchief, Blackhawk (I), Chippewa, Adams (II), Harosoy, Hawkeye, Lindarin, Ford (III), Lincoln, Shelby, Clark (IV), Perry, Scott, Wabash, Dorman (V), Dortchsoy, S-100, Hood (VI), Ogden, CNS-4 (VII), Jackson, Lee, Bienville (VIII), Improved Pelican, J.E.W. 45 [Wannamaker], and Yelanda. This table shows that the oil content increases slightly as one moves from north to south

Smith then discusses garden- or vegetable-type soybeans. "U.S. vegetable soybeans: There is no clear definition for distinguishing the field-type from the garden-type beans. The distinctive features of the garden beans are in their superiority in flavor, texture, and ease of cooking–properties that make them preferred for food use... Most of our so-called vegetable-type soybeans we are growing in this country are Japanese garden varieties that came directly from that country; the Kim and Kanrich were developed in this country. Serious disadvantages of garden-type beans which restrict production are the tendency to shatter from the pods when ripe and the consequent large loss with mechanical harvesting... the yields of some varieties are also lower than for field beans. It has been stated frequently that the garden-type bean is higher in protein and lower in oil than the field type.

Table 4 shows the protein, oil, weight of 100 seeds in grams and hilum color for 14 "garden-type soybeans" on a dry basis. The source of the data for all the varieties except Kanrich, Kim, and Easycook is the University of Illinois Bulletin 453 by J.W. Lloyd and W.L. Burlison 1939 ["Eighteen varieties of edible soybeans: Their adaptability, acceptability, culture and characteristics"]. "For these data the protein values are no higher than for present-day field types and the oil values are only 0.77% lower" than typical field types soybeans shown in table 3. The weight in grams

of 100 seeds, in descending order of seed weight and size, is as follows: Hokkaido 31.9, Funk Delicious 31.7, Willomi 31.1, Jogun 29.9, Emperor 29.7, Giant Green 29.4, Kim 28.7, Imperial 28.4, Kanrich 27.3, Fuji 25.9, Illington 25.9, Higan 23.4, Bansei 21.2, and Easycook 16.2.

Conclusion: It "appears that claims for high protein values for garden type soybeans may be exaggerated." A portrait photo shows A.K. Smith.

Note 1. This is the earliest document seen (Dec. 1998) concerning the breeding or selection of soybean varieties for food use–in this case tofu for Japan.

Note 2. This is the earliest English-language document seen (June 2009) that contains the term "garden-type soybeans" or "vegetable-type soybeans." The two terms as synonyms. Address: NRRL, Peoria, Illinois.

799. *New York Times.*1959. Food news: No tipping allowed in Red China. Oct. 26. p. 32.
• ***Summary:*** Mr. Gerald Clark, a Canadian, and author, and a correspondent for the Montreal Star, has just returned from China. He said that his favorite dish was Peking duck, a specialty of that city.

"'It's really something,' he said. The ducks are specially fed and spend the latter part of their short lives tethered. It seems cruel, but the result is an unusually tender and succulent dish. After roasting, the duck is carved into very thin slices covered with wonderfully crisp skin. The pieces are wrapped pancake fashion in a 'doily' made of wheat flour, and dipped in hoisin sauce and scallions."

800. *Forage Notes–Notes sur les Fourrages (Ottawa, Canada).*1959. Merit soybean. 5(1):38-39. *
• ***Summary:*** The soybean variety Merit, a cross between Blackhawk and Capital, matures 2-3 days earlier than Comet and 5-6 days earlier than Capital. It is well adapted to some regions in Ontario and southwestern Quebec, Canada.

801. Martin, A.L.D.; et al. 1959. Oilseeds committee report. In: Report Annual Conference Manitoba Agronomists. See p. 8-13. *
• ***Summary:*** Gives information on the yield and agronomic characteristics for the soybean varieties Acme, Crest, and Flambeau. Also discusses flax, Polish rapeseed, and sunflowers.

802. Pearse, F.S. 1959. Low cost weed control in soybeans. *Down to Earth* 14(4):7-8. [4 ref]*
Address: Dow Chemical of Canada Ltd., Sarnia, ON.

803. Prescott, Samuel Cate; Dunn, Cecil Gordon. ed. 1959. Industrial microbiology. 3rd ed. Revised by Cecil Gordon Dunn. New York, NY: McGraw-Hill Book Co., Inc. 942 p. Illust. Index. 23 cm.

• ***Summary:*** Chap. 41, titled "Mold enzyme preparations: Uses and products" (p. 666-83) discusses: Mold enzymes: Submerged culture method, continuous tray method for producing mold enzymes, rotating drum method for producing mold enzymes (described by Underkofler et al. 1947), glucose oxidase, uses of mold enzymes (proteases, fungal enzymes). Some mold products: Use in Japan and China, soy sauce (koji from *Aspergillus flavus-oryzae*, Chinese soy sauce, preparation of the "kojies," chemical soy sauce), soy sauce yeasts, tamari, miso, koji. The section on patents (p. 682) cites 15 patents by J. Takamine yet (amazingly) Takamine's name does not appear in the extensive index at the end of the book–though he is considered by some to be the father of industrial microbiology.

The amylo process and a modified amylo process are discussed on pages 864-66. The amylo process is used primarily for converting starch to sugar by the use of selected molds *(Mucor, Rhizopus),* some of which have the ability to produce small quantities of alcohol from sugar.

Soy is also discussed on the following pages: Soybean oil and meal are used in the production of vitamin B-12 by *Streptomyces olivaceus* (p. 485-86). In the production of pentonic acids, several drops of soybean oil were used as an antifoam agent (p. 508). In the production of sodium gluconate, small amounts of soybean oil could be used as an antifoam agent, though they decreased the sugar utilization to an impractical value. (p. 594). L-Glutamic acid can be produced in a number of ways. One is by the hydrolysis of wheat gluten, soybean cake, or other protein-rich food material (p. 713-16). The commercial process now being used in Japan employs sweet potatoes as the chief raw material in a one-stage fermentation process with a strain of *Micrococcus* (p. 712-13).

In the chapter on Saccharifying Agents, Takamine is discussed in the section on "Mold bran" (p. 844). "Takamine, in 1914, advocated the use of mold enzymes (from *A. oryzae)* in the distilling industry. Studies were carried out in distilleries in Canada using his mold-bran preparation *(Taka-koji)* in place of malt to saccharify grains. Although the yields of alcohol obtained through the use of mold bran were reported to be higher than those obtained through the use of malt, the process was not adopted."

A table (p. 857) lists 19 sources of microbial amylase, including Taka-Diastase, made by Parke, Davis & Co., and Alase, made by Takamine Lab. Also in this chapter, in the section on submerged culture of mold amylases, a table (p. 859) shows that soybean meal is used as a protein source in the production of dextrinizing enzyme by *Aspergillus niger* NRRL 337. Address: 1. Sc.D., Prof. of Industrial Biology (Emeritus), Former Head of the Dep. of Biology and Public Health and Dean of the School of Science, MIT; 2. Assoc. Prof. of Industrial Microbiology in the Dep. of Food Technology, MIT (Massachusetts).

804. Nielsen, K.F.; Cuddy, T.F.; Woods, W.B. 1960. The influence of the extract of some crops and soil residues on germination and growth. *Canadian J. of Plant Science* 40(1):188-97. Jan. [19 ref]
• ***Summary:*** The soybean was one of six crops whose seeds were germinated. "Early work on the injurious effects of preceding crops... suggested that nutrient deficiency may be important... More evidence has accumulated recently to show that many plants contain germination and growth inhibitors... and also to show that toxic compounds are produced in the decomposition of crop residues in the soil." Soybean germination was most negatively influenced by alfalfa extract, followed by timothy extract. Address: Canada Dep. of Agriculture, Ottawa, Ontario.

805. Howell, R.W.; Wargel, C.J.; Brim, C.A.; et al. 1960. Response of soybeans to seed-treatment with gibberellin under simulated commercial conditions. *Agronomy Journal* 52(3):144-46. March. [14 ref]
Address: 1. Plant Physiologist; 2-3. Research Agronomists. All three: Crops Research Div., ARS, USDA.

806. *Soybean Digest.*1960. Canadian crush 16 million bu. in 1957 [sic, 1959]. April. p. 10.
• ***Summary:*** Canadian processors crushed 16.1 million bushels of soybeans in 1959, up from 2 million bushels in 1958–according to the USDA Foreign Agricultural Service.

807. Shuel, R.W. 1960. Dr. Charles Ambrose Zavitz, an Ontario pioneer agronomist. *O.A.C. Review* 72:8-9. Spring. *
• ***Summary:*** A good evaluation of his work by one of his successors in the Dept. of Field Husbandry.

808. Brown, D.M. 1960. Soybean ecology. I. Development-temperature relationships from controlled environment studies. *Agronomy Journal* 52(9):493-96. Sept. [15 ref]
• ***Summary:*** "The aim of this study was to devise a system of heat units that would serve as a better maturity rating than calendar days."

Development of the soybean plant (number of days to flowering) is optimum at about 86ºF. The curve of development is parabolic, with development dropping to zero at about 50ºF and dropping to about 20% below the peak at 100ºF. Address: Research Fellow, Dep. of Physiography, Ontario Research Foundation, Toronto, Canada.

809. Brown, D.M.; Chapman, L.J. 1960. Soybean ecology. II. Development-temperature-moisture relationships from field studies. *Agronomy Journal* 52(9):496-99. Sept. [6 ref]
• ***Summary:*** Lack of available moisture slows the average rate of development. "These studies were conducted in Ontario at Brampton, Guelph, Jarvis, and Harrow, from 1954 to 1958, and at Ames and Kanawha, Iowa, from 1955 to 1957."

Three phenological stags were recorded: (1) First bloom date, when one or more of the plants had one or more flowers visible. (2) Maximum podding date, when 95% of the plants had pods 1/8 to 1/4 inch long on uppermost nodes of the main stem and lower pods full length. (3) Maturity date, when all leaves had fallen and at least 95% of pods had turned brown.

The period prior to the first bloom date is referred to as the preflowering period. Address: 1. Research Fellow; 2. Senior Research Fellow. Both: Dep. of Physiography, Ontario Research Foundation, Toronto, Canada.

810. *Soybean Digest.*1960. Honorary life members [American Soybean Assoc.]: Dr. E.E. Hartwig and Dr. Frederick Dimmock. Sept. p. 8.
• ***Summary:*** Dr. Edgar E. Hartwig, who has played a leading role in the rapid growth of soybean production in the southern United States, was born in 1913 at Wheaton, Minnesota. He received his bachelor of science degree from the Univ. of Minnesota and his PhD degree from the Univ. of Illinois. In 1943 he joined the southern soybean improvement program in cooperation with the North Carolina Agric. Exp. Station.

"In January 1949 he became coordinator of the southern soybean improvement program at the Delta Branch Experiment Station, Stoneville, Mississippi, which position he still holds. Dr. Hartwig has had a major part in the development and release of the following soybean varieties: Roanoke, Jackson, Dorman, Lee, Hood and Hill. In recent years more than 90% of the soybean acreage in the Midsouth has been planted to these varieties."

Dr. Dimmock was born at Edgware, Middlesex County, England in 1896, and came to Canada at the age of 15. "He received his BSA degree at McGill University in 1923, his MSA degree in 1925, and his PhD at the University of Nebraska in 1947. Dr. Dimmock served as assistant agrostologist at the Agricultural Experiment Station, Harrow, Ontario, from 1923 to 1928, and was transferred to the forage crops division, Experimental Farms Service, Canada Department of Agriculture at Ottawa, Ontario, in 1928. He has been in charge of the soybean and corn breeding programs at Ottawa since 1928... He has had charge of the program of soybean investigations for the Canada Department of Agriculture since it was initiated in 1924. During the 6 years he was at Harrow he developed and distributed A.K. (Harrow), and later Harman, the selection of which he began at Ottawa.

"The program of soybean research which he initiated at Ottawa has resulted in the development and distribution of the following early-maturing varieties of soybeans, most of them from hybridization: Mandarin (Ottawa), Capital,

Kabott, Pagoda, Comet, Acme, and Merit. These varieties have contributed greatly to the development of a successful soybean industry in Canada, and have been of great importance in the northern United States."

Photos show Dr. E.E. Hartwig (with Jake Hartz, Jr., who introduced him at ASA's 40th convention in Memphis, Tennessee) and Dr. Frederick Dimmock (with ASA vice president Charles V. Simpson presenting the award, and K.A. Standing of Chatham, Ontario, who introduced Mr. Dimmock).

811. Standing, K.A. 1960. The organization of Ontario [soybean] growers. *Soybean Digest.* Oct. p. 26-17.
• ***Summary:*** From a speech before the American Soybean Association in Memphis, Tennessee. Contents: Introduction. Powers granted under legislation. Finance. Activities of the Board: Transportation, storage, market development, price support, tariffs and import restrictions.

"Canada imports 15 million bushels of soybeans from the United States, double her domestic production plus 6 million in the form of soybean meal." "There are 15,000 soybean growers all of whom are members of the Ontario Soya-Bean Growers' Marketing Plan under provincial and federal legislation."

Finance. Under the legislation, each grower has deducted from the selling price of his soybeans a fee, at present ½¢ per bushel, which is forwarded by the buyer to the board office with a record of each grower's name, address and number of bushels sold." A portrait photo shows K.A. Standing.

Note: This is the earliest document seen (Feb. 2000) that mentions "The Ontario Soya-Bean Growers' Marketing Plan." "The Ontario Soybean Growers Marketing Board" is referred to but not actually mentioned in the text of the article; it is mentioned only under the writer's name as the organization of which he is Secretary-Manager. Address: Secretary-Manager, Ontario Soya-Bean Growers' Marketing Board, Chatham, Ontario.

812. Obolensky, G. 1960. Getreidekultur und klima. I und II. Kanada [Cereal growing and climate. I. Canada (Quebec, Ontario, Manitoba, Saskatchewan). II. Canada (Alberta, British Columbia, Yukon, Northwest territories)]. *Qualitas Plantarum et Materiae Vegetabiles* 7(3):297-323. Nov. 15. [35 ref. Ger; eng]
• ***Summary:*** Discusses the breeding and production of cereals (especially wheat) throughout Canada, province by province, in relation to variety, climate, rainfall, and soils. Also discusses cultivation of soybeans, barley, flax, and sunflower. Soybeans are grown in the provinces of Ontario (p. 301), Manitoba (p. 306), and Alberta (p. 315). Address: Dr. Ing. Agr., Doct. ès Siences (Doctor of Sciences).

813. Arnould, Francis. 1960. La vie et l'oeuvre du Dr. Berczeller et le soja alimentaire [The life and works of Dr. Berczeller and soyfoods (Continued–Document part III)]. *Revue d'Histoire de la Medecine Hebraique* 13(4):153-68. Dec. [Fre]
• ***Summary:*** Continued from page 164. Dr. Berczeller was certainly a very remarkable person both intellectually and morally. His large-scale programs for the scientific study of food proteins and economies were but a projection of his personality on the social reality of the vast world. In this domain he succeeded technically, scientifically and also practically. He foresaw the future clearly. He was a sort of hero and prophet in the drama of underdeveloped and undernourished countries, and in supplying one of the keys to solve these problems. His breadth of knowledge was vast both in his area of specialty and also in many of the great human questions such as history, politics, and art. He had an insatiable curiosity. He read a lot, and swiftly. In addition to Hungarian, he spoke German, English, and also French, but with some difficulty. We have a list of the titles of articles and other document published by Dr. Berczeller (about 280); this is available upon request.

Until 1923 he did research in biochemistry. Thereafter he devoted himself primarily to questions of soya. But he also conducted many other studies, and worked on inventions that have not been published. Starting in 1932 he developed an interest in biometrics, and in the general organization of scientific knowledge and international affairs. To the end, he maintained a faith in the potential of international organizations, and the fecundity of the international point of view over that of individual nation states.

We did not learn until June 1940, when Dr. Berczeller withdrew to Toulouse at the moment of the armistice, that he was from a rich Jewish medical family from Budapest, benefactors of the hospital. In 1934 he separated from his wife, Mme. Selma Berczeller, who was German "Aryan" and pro-Nazi. He never spoke of Judaism.

Dr. Berczeller lived a long time in London. In 1932 he had had contact with many members of the conservative party, who dreamed of a food policy and politics for Europe. In 1947 Dr. Berczeller told us that the patent rights on the soy treated in Germany by his process were very considerable. He estimated them at 5 million pounds sterling. Hitler completely spoiled it. But after Hitler's fall, he could have recouped these right completely, as an Israelite. He searched in Paris for lawyers to uphold these rights, but without success. As he was single and without children, he wanted to donate his fortune to his project of an international laboratory. We do not have very considerable proof of this fact. The state of his mental health led us to doubt a little the reality of these affirmations, but since he always told us the truth, they are probably true.

He had various collaborators and friends. In Budapest: The University of Budapest, where he had been a professor. Royal Hungarian Institute of Chemistry–Prof. Alfred Savacker [Schwicker?]. Budapest experiment station of veterinarian physiology–Dr. Stephan Weiser. Vienna: Food Institute of Vienna–Victor F.A. Richter. Institute of Physiology–Pr. A. Durig and Dr. H. Wastl. Institute of Pharmacology: Pr. Wasicky, Dean Ernest Kupelweiser [sic, Kupelwieser], Pr. Zederbauer, Dr. Hugo Glaser, Dr. Harnish, Dr. H. Prinz, Dr. Alfred Schneiker [Schwicker?], Frau Herta Spring–president of the Bundes Oesterreichische Frauen vereine. Frau Olga Hess, director of the Bundeslehranstalt für wirtschaftlicher Frauenberufe. Dr. Leopold Mall, director of the Reichanstalt fur Mutter und Saeuglingsfursoge. P. Frankfurter, expert in bread baking. Prague: Pr. D. Stoklasa, Pr. Mayerhoffer, Skoda Foundation. British Empire: Royal Empire Society–Miss Eddie A. Hornibrook. John Freud, physiologist at University College, Cork, Ireland. Pr. T.R. Parsons, Prof. of Medical Research, McGill University Clinic, Montreal [Quebec], Canada.

814. Short (J.R.) Milling Company; Short (J.R.) Canadian Mills Ltd. 1960. Wytase: The enzyme product of modern soybean research. Chicago, Illinois. 37 p. 28 cm. Spiral bound.

• ***Summary:*** Contents: Beautiful white bread made with Wytase. (Full-page photo of slices of white bread on a plate against a background of soybean seeds). What is Wytase? What is an enzyme? Wytase contributes to better machinability. Farinograms show the greater mixing tolerance of Wytase doughs. Wytase makes bread whiter. Wytase makes bread of better flavor. Wytase millers survey each soybean crop for enzyme strength. Milled to preserve enzyme activity. Enzymes are sensitive. Modern milling and packaging brings J.R. Short products to you pure and safe. Wytase standards of identity for bakery products. Laboratory program. Where corn for Wytase grows almost at the door. Ceratex aids fermentation. Protein research by J.R. Short contributes to better nutrition. Special 70–Another new product for bakers (A stable calcium peroxide dough conditioner). W-52–A new product to help bakers (a stable dough conditioner). Wytase products and services near you (19 warehouses in the USA and 6 in Canada). The benefits of Wytase (rear cover; it makes whiter, softer bread with greater yield).

"Wytase is used extensively in the production of white bread and rolls. It is a natural enzyme preparation processed from enzyme active soy flour and a special dextrinized product (Footnote: Ceratex, see p. 29) made from corn. Wytase was developed by J.R. Short Milling Company more than 30 years ago to provide a product which would utilize the enzyme systems of soybeans for the use of bakers." The key enzymes in Wytase are lipoxidases, plus some beta amylase. "Enzyme activity is responsible for all life, and without enzymes life would not exist." Enzymes are proteins, which contain nitrogen. "Their molecular weight is very large, their structure is exceedingly complex, and they are greatly affected by their environment"–especially pH and temperature. One main function of Wytase is to bleach the carotenoid pigments of flour. Even bleached flours contain a substantial amount of carotenoid pigments.

"J.R. Short Milling Company mills soybeans exclusively to produce full fat enzyme active soy flour, the chief ingredient of Wytase. The milling of enzymatically active soy flour requires great care to preserve the enzyme systems." The company maintains laboratories in its three mills located at Chicago, Illinois; Mount Vernon, Indiana; and Toronto, Canada.

This booklet contains many photos, a small one at the bottom of each right-hand page of text, and a large one on the left-land facing page. Photos show: Slices of white bread on a plate against the background of a field of soybeans (cover, full page). Slices of white bread on a plate against a background of soybean seeds (p. 1, full page). A handful of soybeans against a background of soybeans (p. 2). J.R. Short's laboratories (p. 4-5). An Extensograph: It measures the extensibility of dough which contributes to its gas retention property (p. 6). Farinogams for bread with and without Wytase (p. 8-9). Harvesting soybeans from a combine into a truck (p. 14). The latest pneumatic milling system used by J.R. Short (p. 16). A compressimeter measuring the softness of a slice of bread containing Wytase. Wytase Dough Whitener being packaged in 100 lb 5-ply multi-wall [multiwall] sacks. Letter of quality guarantee from Jeffrey R. Short, Jr., President. The bake shop and pilot plant at J.R. Short (p. 24-25). Illustration of J.R. Short's Mt. Vernon Milling Co. on the Ohio River (Mr. Vernon, Indiana, p. 26). Harvesting corn. Measuring amylase activity with the Amylograph. Mellon Institute (Pittsburg, Pennsylvania) where a J.R. Short Milling Company research fellowship developed a process for isolating an undenatured edible protein from soybeans [in about 1953-56] (p. 30). Address: 20 North Wacker Dr., Chicago 6, Illinois.

815. Baker, E.J., Jr. 1961. Combine: Reflections. *Implement & Tractor (Kansas City, Missouri)* 76(4):35-36. Feb. 1. [1 ref]

• ***Summary:*** First the author reprints a prophetic editorial he wrote 36 years ago in the 20 Nov. 1924 issue of *Farm Implement News.* That prophetic editorial began: "Recent tests of a combined harvester in Illinois in harvesting soy beans may prove a milestone in the extension of the use of this great labor-saving machine from the comparatively dry grain growing sections of the west to the eastern part of the country more blessed with rainfall."

It was the soybean that turned out to be responsible for the introduction of the combine into the eastern United States.

He then reflects on the history of the combine and the developments that were necessary to make it a practical and widely used farm machine. In the USA during the early 1900s, combines were made and used only in California. No effort was made to sell them to the "humid east" because it was widely believed that no small grain containing more than 14% moisture could be combined and the grain stored without overheating and spoiling.

Meanwhile in Australia, starting as early as 1843, a large market had developed for a harvesting machine that stripped the kernels from the stem but did not cut the stems; it left the winnowing to a later operation. In 1884 Hugh Victor McCay of Sunshine, near Melbourne, perfected a stripper-harvester that cleaned the grain after stripping it. This as similar competitive harvesters which followed revolutionized grain harvesting "Down Under" and later, by exports, in Argentina.

These developments prompted North American makers of harvesting machines to follow suit. In 1901 Massey-Harris (MH) of Toronto (Ontario, Canada) began production of a stripper for export; in 1904 the International Harvester Co. (IHC) of Chicago, Illinois, did the same. Amazingly, neither company sold these machines to their domestic markets. But they both began to think about making smaller versions of the huge California combines, which were harvester-threshers rather than strippers. Thus, in 1910 Massey-Harris introduced a 10-foot reaper-thresher which had a cutterbar; it would be sold to the export markets of Australia and Argentina; in 1914 International Harvester did the same. Not long after, a market for combines developed in "dry" Kansas. Holt machines got there first, with IHC not far behind. At that time, MH had no sales organization in the USA.

The some time in 1923 or early 1924 *Farm Implement News* (FIN) received a letter from a subscriber in down-state Illinois. He was also an IHC dealer. He explained that one of his big customers [one of the Garwood Brothers of Stonington] was raising that newfangled crop, the soy bean, on a large scale, and he thought he could harvest them better if he had a combined harvester. He was willing to buy and use it at his own risk. IHC had discussed the matter at its headquarters and refused to ship a combine to Illinois under any circumstances, since it believed that combining any crop was impractical in any humid region such as Illinois. So, enquired the dealer, could FIN suggest any other source of a combine for his customer. Mr. Baker referred the subscriber to the Massey-Harris Co. of Canada as the only possible source of a moderate-sized machine, but knowing full well that MH did not sell in the USA. After some correspondence and reflection, Massey-Harris shipped the combine to Illinois, "and may even have sent an expert to see that it was set up and operated right."

The editorial in FIN described not only first successful combining of soy beans in Illinois–but also the first successful use of a combine on any crop east of Kansas.

Before 1925 all combines were pulled by horses or a tractor. In 1925 the first self-propelled combine was introduced in Australia. Named the Sunshine auto-header, it was developed by Headlie S. Taylor of H.V. McKay Pty., Ltd., of Sunshine, Australia. In 1939 Massey-Harris introduced the first self-propelled combine in North America. Its design had been perfected by the time World War II began and the demand for wheat skyrocketed. But steel was in very short supply during the war, and needed for crucial military operations. A man named Joe Tucker, a Michigan-born expert in heavy machinery with good ideas and irresistible drive, joined Massey-Harris at that fateful moment. He started the "Harvest Brigade" and persuaded the U.S. government to ship scarce domestic steel to a Canadian company so it could make combines to harvest American wheat. This, in turn, helped prevent delay of farmer acceptance of the new technology. Details of the history of the Harvest Brigade success are given.

Photos show: (1) A man with a big smile stepping onto a machine bearing a large white sign: "Massey-Harris, Self-Propelled, Harvest Brigade." (2) Front view of a Massey-Harris self-propelled combine working in a field.

816. American Soybean Association. 1961. Soybean Blue Book. Hudson, Iowa: American Soybean Assoc. 160 p. Advertisers' index. 22 cm.

• ***Summary:*** Under the heading "Canadian production" are four tables (p. 24) as follows: (1) "Production of soybeans in Canada, 1942-1960." For each year gives acreage, yield per acre, and total production–which was 5.675 million bushels in 1960.

(2) Production of soybean oil and oilcake in Canada." For each crop year from 1943-44 to 1959-60 gives soybeans crushed (bushels), oil produced (tons), and oilcake and meal produced (short tons). The crush increased from 241,315 bushels the first crop year to 17,080,212 bushels the last year.

(3) "Soybean production, utilization and value, Canada, 1936-1960."

(4) "Soybean crushings in Canada, crop years 1946-47 through 1959-60." Address: Hudson, Iowa.

817. Brown, D.M.; Owen, C.W. 1961. Effect of photoperiod on soybean development. *Soybean Digest.* May. p. 14-16. [3 ref]

• ***Summary:*** Gives data collected mainly from Harrow, Ontario. Address: 1. Ontario Research Foundation, Toronto, Canada; 2. Agricultural Research Station, Harrow, Canada.

818. Nelson, C.D.; Clauss, H.; Mortimer, D.C.; Gorham, P.R. 1961. Selective translocation of products of photosynthesis in soybean. *Plant Physiology* 36(5):581-88. Sept. [21 ref]
Address: Div. of Applied Biology, National Research Council, Ottawa, Canada.

819. Brown, D.M.; Chapman, L.J. 1961. Soybean ecology III. Soybean development units for zones and varieties in the Great Lakes region. *Agronomy Journal* 53(5):306-08. Sept/Oct. [12 ref]
• ***Summary:*** A map shows the Great Lakes region divided into zones, defined by the number of Soybean Development Units (SDU) available for maturing soybeans in 3 out of 4 years. Table 1 shows the SDU required to mature 29 soybean varieties and the number of SDU available in recommended zones. The varieties are: Acme, Crest, Flambeau, Norchief, Merit, Comet, Hardome, Mandarin (Ottawa), Grant, Capital, Chippewa, Renville, Monroe, Blackhawk, Earlyana, Lindarin, Harosoy, Hawkeye, Richland, Adams, Dunfield, Ford, Shelby, Lincoln, Illini, Clark, Chief, Wabash, Perry. Address: 1. Research Fellow; 2. Senior Research Fellow. Both: Ontario Research Foundation, Toronto, Ontario, Canada.

820. Co-op. Vegetable Oils Ltd. 1961. Brief to the Tariff Board Canada supporting proposals relative to Reference No. 131 as submitted to the Secretary of the Tariff Board under date of November 6, 1961. Altona, Manitoba, Canada. 12 + 6 p. Dec. 1. [2 ref]
• ***Summary:*** This report was prepared by J.J. Peters, President of Co-op. Vegetable Oils Ltd. on behalf of its member oilseed producers. This co-op is owned and operated by oilseed producers, and its members constitute over 90% of the sunflower growers, and over 66% of the rapeseed growers in Manitoba province. They are addressing proposed tariff changes.

Appendix 1 shows that in 1956 in Canada rapeseed acreage (351,900 acres) first passed soybean acreage (240,000 acres). In 1957 rapeseed acreage had skyrocketed to 617,900 acres, versus 252,000 acres for soybeans. However (as shown by Appendix 3) during the 1950s, most of the edible vegetable consumed in Canada from crushing domestic oilseeds was soya bean oil. In 1959, for example, 52.0 million lb of such soya bean oil was consumed, compared with 18.0 million lb of rapeseed oil and 2.0 million lb of sunflower oil. However in 1959 Canada's main source of edible vegetable oil came from the crushing in Canada of imported soybeans–which produced 118.0 million lb of soya bean oil.

By far the leading source of oilcake meals consumed in Canada was the soybean. In 1959, some 117,000 tons of soya bean meal were produced from domestic soybeans, versus 50.0 tons from domestic linseed and 12.0 tons from domestic rapeseed. In addition that year, 266,000 tons of soya bean meal were produced in Canada by crushing imported soybeans, and another 249,000 tons of soya bean meal were imported. Address: Altona, Manitoba, Canada.

821. **Product Name:** Soybean Oil, and Soybean Oil Meal.
**Manufacturer's Name:** Saskatchewan Wheat Pool.
**Manufacturer's Address:** Saskatoon, Saskatchewan, Canada. Phone: FA 8-2321.
**Date of Introduction:** 1961.
**Ingredients:** Soybeans.
**New Product–Documentation:** Soybean Blue Book. 1961. p. 92. Vegetable oil division manager: C.A. Warren. Note 1. This entry does not appear in the 1962 Blue Book (p. 96). Note 2. This is the earliest known commercial soy product made in Saskatchewan province, Canada.

822. **Product Name:** Soybean Oil, and Soybean Oil Meal (44% and 50%).
**Manufacturer's Name:** Western Canadian Seed Processors Ltd.
**Manufacturer's Address:** Lethbridge, Alberta, Canada. Phone: FA 8-2321.
**Date of Introduction:** 1961.
**Ingredients:** Soybeans.
**New Product–Documentation:** Soybean Blue Book. 1961. p. 92. 3 expellers and Anderson solv., capacity 120 tons. Storage capacity 250,000 bushels. 44% and 50% soybean meal. Approximate operations, up to 750,000 bushels. Served by CP RR [Canadian Pacific railroad].

Soybean Blue Book. 1968. p. 96.

Note: This is the earliest known commercial soy product made in Alberta province, Canada.

823. Department of Trade and Commerce, Canada. 1961. Oilseeds from Canada. Ottawa, Ontario, Canada. 24 p. 28 cm.
• ***Summary:*** "Oilseeds have been grown commercially in Canada since 1720 when the pioneers of New France grew flax for fibre and later for oil." Canada has gradually changed from a net importer of fats and oils to a net exporter. "Last year there were more than 4 million acres in Canada planted to various types of oilseeds, and the bulk of the oilseed production was exported to more than 25 countries of the world. Flaxseed, rapeseed, soybeans and mustardseed are the principal oil-bearing seeds exported from Canada."

A table (p. 3) shows acreage and production of Canada's 4 major oilseeds from 1948-52 to 1960. Throughout this period, flaxseed was the leading oilseed, with production growing from 230,000 tonnes to 638,000. Rapeseed grew from a minor crop to the second largest one, 9,000 tonnes in 1948-52 increasing to 250,000 tonnes in 1960. Soybeans are third, having grown from 86,000 tonnes

to 154,000. In 1960 rapeseed first surpassed soybeans in production. Most of Canada's rapeseed is grown in the three prairie provinces of Alberta, Saskatchewan, and Manitoba. Virtually all soybeans are gown in southern Ontario. Canada is the world's leading exporter of rapeseed. The leading importers of this rapeseed are Japan (40,128 tonnes in 1960), followed by Italy (37,138 tonnes).

The section titled "Soybeans in Canada" (p. 16) gives statistics (tons exported and dollar value) on acreage and production, and on yearly exports from 1956 to 1960 of soybeans, soybean oil, soybean meal, and total. In 1960, Canada exported $20,939,000 worth of soybeans and soybean products, down from $26,988,000 in 1956. The main trend has been toward increased exports of soybeans and decreased exports of oil and meal [value-added products]. Address: Ottawa, Ontario, Canada.

824. Brockman, Francis J.; Murdock, J.D.; Nelan, N. Assignors to Canadian Industries Ltd. 1962. [Coating compositions]. *German Patent* 1,122,647. Jan. 25. British application filed 20 May 1959 and 27 April 1960. 3 p. (Chem. Abst. 57:4793e). [Ger]*
• ***Summary:*** Soybean oil fatty acids are used as a major ingredient in these compositions containing oil-modified alkyd resins.

825. *Soybean Digest.*1962. Leading soyabean varieties. Feb. p. 8-9.
• ***Summary:*** Gives the name and location of the organization that developed each variety, the year of release, and the botanical and agronomic characteristics of 26 northern and 10 southern soybean varieties. The most widely grown northern varieties (listed in order of maturity from earliest to latest) are: Acme, Crest, Flambeau, Norchief, Merit, Comet, Grant, Mandarin (Ottawa), Hardome, Capital, Chippewa, Monroe, Blackhawk, Lindarin, Harosoy, Hawkeye, Harman, Adams, Ford, Shelby, Clark, Wabash, Perry, Kent, Bethel, Scott.

Southern varieties (listed in order of maturity from earliest to latest) are: Hill, Hood, Ogden, Lee, Jackson, Rebel, Bienville, Hampton, JEW 45, Improved Pelican. A map of the USA and Canadian growing areas shows recommended areas for production of these varieties.

826. *Soybean Digest.*1962. Seed directory (Ad). Feb. p. 36.
• ***Summary:*** Soybean seedsmen and seed companies are listed alphabetically by state (and within each state alphabetically by city) in the following states: Arkansas, Illinois, Indiana, Iowa, Kansas, Minnesota, Mississippi, Missouri, Nebraska, North Carolina, Ohio, South Carolina, Tennessee, Virginia, Ontario (Canada). For each listing is given the amount and varieties of seed available, and whether certified, uncertified, or registered. Most of the entries are for individual farmers.

827. Evans, E.J.; Dekker, A.J. 1962. Comparative SR90 [strontium-90] content of agricultural crops grown in a contaminated soil. *Canadian J. of Plant Science* 42(2):252-58. April. [9 ref]
• ***Summary:*** Strontium-90 "is generally recognized as one of the most hazardous of the fission products which have contaminated the biosphere since the advent of nuclear fission. Attention has, therefore, been focused on the factors which influence its entry into food consumed by man. One of the important paths of entry of Sr90 into the diet is its absorption by plants from the soil." Moreover: "Different parts of the same plant species may differ in Sr90 content."

The soybean was one of 36 plant species grown in soil contaminated with Sr90. Considerable variation was found in the Sr90 content of samples of botanically unrelated species; it was found to vary directly with the content of the plant samples. Legumes, as a group, "contained higher amounts of both Ca and Sr90 than did grasses, straw, or cereal grains." Address: Canada Dep. of Agriculture, Ottawa, Ontario.

828. Munns, W.O.; Kairys, S.; Manion, D.A.; Meade, E.M. 1962. The separation of solid fatty acids from liquid fatty acids by the formation of acid soaps. II. Pilot plant studies. *J. of the American Oil Chemists' Soc.* 39(4):192-93. April. [2 ref]
• ***Summary:*** Soybean fatty acids are included. Address: 1-3. Canada Packers Limited, Toronto; 4. Univ. of Toronto, Canada.

829. *Soybean Digest.*1962. World oils and fats: Canada. April. p. 14.
• ***Summary:*** "The Ontario Soya-Bean Growers' Marketing Board has proposed to the Canadian Tariff Board a tariff of $0.30 per bushel on soybeans, $6 per ton on soybean meal, and $0.04 per pound on soybean oil. The board points out that about $50 million worth of U.S. soybeans and soybean products enter Canada duty-free annually." The board believes that by reducing imports, soybean production in Canada would more than double without any surpluses developing. 15.4 million bushels of soybeans were crushed in Canada in 1961.

Note: This is the earliest document seen (Jan. 2010) that mentions "The Ontario Soya-Bean Growers' Marketing Board."

830. Roytenberg, M.M.; Hughes, R.G. 1962. Soybean prices: Some relationships between Canadian and United States markets. *Economic Annalist (The)* 32(3):61-65. June. [1 ref]
• ***Summary:*** Canadian soybean prices, production, imports, exports, net imports and domestic utilization for 1956-61.

831. *Foreign Crops and Markets (USDA Bureau of Agricultural Economics).*1962. U.S. exports of soybeans, edible oils and meal rose in April. 85(2):20-21. July 9.
• ***Summary:*** Major markets for U.S. soybeans in April, with their percentages of total exports were: Japan 28, Canada 24, the Netherlands 17, and West Germany 14.

832. Brown, B.E.; Meade, E.M.; Butterfield, J.R. 1962. The effect of germination upon the fat of the soybean. *J. of the American Oil Chemists' Soc.* 39(7):327-30. July. [27 ref]
• ***Summary:*** "There was a continuous decrease in the total dry matter and crude fat of the cotyledons and whole seedlings of soybeans during 12 days of germination [at 25ºC in the dark], contrary to the observations of some of the earlier workers." The loss of fat gradually decreased with the germination time. The classic work in this area was done by Hellriegel in 1885 with sunflower seeds. Address: Dep. of Food Chemistry, Univ. of Toronto, Ontario, Canada.

833. *Foreign Crops and Markets (USDA Bureau of Agricultural Economics).*1962. Canada continues to import soybeans for crushing duty free. 85(6):16. Aug. 6.
• ***Summary:*** "Under Canada's austerity program, a 5-percent surcharge would be assessed on imported soybeans, according to the announcement made on June 24, 1962. However, the surcharge is not applicable to soybeans imported for crushing, which continue to enter Canada duty free."

834. *Foreign Crops and Markets (USDA Bureau of Agricultural Economics).*1962. Canada raises soybean, and sunflower support prices. 85(6):16-17. Aug. 6.
• ***Summary:*** "The Canadian Agricultural Stabilization Board recently announced that 1962-crop soybeans would be supported at C$2.14 per bushel and sunflower seed at C4.22 cents per pound. This compares with 1961-crop support prices of $2.12 and 4.15 cents, respectively.

"The support for Ontario-grown soybeans applies to Canada No. 2 grade or better quality, 14 percent moisture, delivered at elevator in Ontario from July 1, 1962, to June 30, 1963. The support level is 100 percent of the base price of the last 10-year average.

"If the average price received during the 1962-63 marketing year falls below $2.14, the Board will pay the difference to producers. During the marketing year ending June 30, 1962, prices were well above the support level of $2.13 and, consequently, no deficiency payment was made. Returns to producers in the season just ended were the highest since 1954."

835. *Foreign Crops and Markets (USDA Bureau of Agricultural Economics).*1962. Canadian oil plantings decline sharply in 1962. 85(7):16-17. Aug. 13.
• ***Summary:*** Canadian oilseed plantings in 1962, largely flaxseed and rapeseed, have been sharply reduced from 1961, according to preliminary estimates from the Dominion Board of Statistics. Sunflower seed plantings, although small, also declined sharply while soybean plantings increased slightly."

"Soybean plantings in Ontario, at 221,000 acres, increased 4% from last year." In Canada, soybeans are grown only in Ontario."

836. Knopf, H. 1962. Soya beans: Notes on their uses and the world market. *Rhodesia Agricultural Journal* 59(4):221. July/Aug.
• ***Summary:*** This is the summary of a lecture given by Mr. Knopf at a field day for soya beans at Bauhinea Farm. He urges Rhodesian farmers to familiarize themselves with the world market and prices for soya beans. "The Canadian soya bean, enjoying Imperial preference of 5 per cent over beans from non-Commonwealth countries, is greatly favoured in the market in Britain due to its reputation for purity and consistently high quality."

"While we are gaining experience in handling the crop, soya beans which cannot be used locally for stock feed and seed, may be sold on the London or Liverpool markets, provided they are clean, sound, of good quality, and of sufficient quantity."

Negotiations are now being conducted to establish a modern and efficient solvent extraction plant in Rhodesia, in which Rhodesian Producer Farmers would provide the bulk of shareholders. By the use of solvent extraction, 1,000 tons of beans would yield about 170 tons of crude oil and 800 tons of meal with a residual oil content of only 1%. This meal can serve as an excellent stock feed or it may be refined and processed into a high protein flour for human consumption, and used for filling sausages and meat loaves, in baby foods and in the bakery trade. It is used as a nutrient in the manufacture of yeast, antibiotics, beer and ale. Isolated protein is used in the confectionery trade...

"The refined oil is making an excellent cooking oil and is also used pharmaceutically; in salad oils, mayonnaise, margarine, sandwich spreads, and special varnishes." Address: Chairman, Glendale Intensive Conservation Area, Rhodesia.

837. Siragel-Din, Ismail A. 1962. The economics of high protein feeds in Canada. M.S.A. thesis, Ontario Agricultural College, Guelph, ONT, Canada. Aug. *
Address: Canada.

838. Burnett, Alvin A. ed. 1962. Production and utilization of soybeans in Canada. *Ontario Farm Business.* Fall. p. 4-5. [1 ref]
• ***Summary:*** Indicates that soybean meal is more important than oil in the determination of price. Based on an M.S.A.

thesis by Ismail A. Siragel-Din titled "Economics of High Protein Feeds in Canada," August 1962. Address: Dep. of Agricultural Economics, Ontario Agricultural College, Guelph, ONT, Canada.

839. Tobe, John H. 1962. Margarine (The plastic fat) and your heart attack. St. Catharines, ONT, Canada: The Provoker Press. 145 p. Dec. 18 cm. No index.
• ***Summary:*** Contents: 1. The challenge. 2. What is hydrogenation. 3. The hydrogenation principle laid bare. Commercial point of view. The mechanics of margarine. The 100% corn oil fraud. Hydrogenated oils in the body. Dangers in hydrogenated fats. They say not harmful. More incriminating evidence. Sure-fire formula for a heart attack. Hydrogenation and sex. Some correspondence. The plastic curtain. Summary. It's up to you!

Page 4 states that the use of hydrogenated fats "is unqualifiedly the greatest known threat to the health of the people at the present time." Page 5 states that the process of hydrogenation was discovered by Paul Sabatier, a French chemist who lived 1854-1941. He was once the Dean of the Faculty of Science at the University of Toulouse. He became widely known for his research on catalysis and "in 1912, along with Victor Grignard, he was awarded the Nobel Prize in chemistry for his method of hydrogenating organic compounds in the presence of finely divided metals." He was interested in hydrogenation solely in order to make soaps from vegetable or soft oils.

Soybean oil is mentioned in passing (p. 103) in a letter from Dr. Frederick J. Stare, of Harvard University, School of Public Health, Massachusetts.

Note: This is one of the most poorly researched, poorly written, and poorly documented books on the subjects of margarine and hydrogenation that we have ever seen. It is emotional and sensational fluff. Address: St. Catharines, ONT, Canada.

840. *Harrow Research Station, Research Report (Ontario, Canada).*1962. [Spacing and fertilizer applications for soyabeans]. p. 25. For the years 1959-60. *
• ***Summary:*** In spacing trials with soybeans, the distance between rows was 24 inches and between plants in each row from 1 to 4 inches. In general, the highest yields were obtained from the closest spacing. The addition of fertilizer increased the plant height, number of branches, and 100-seed weight at all planting rates but did not consistently increase yields, yet did cause greater incidence of *Phytophthora* root rot.

841. Cartter, Jackson L.; Hartwig, Edgar E. 1962. The management of soybeans. *Advances in Agronomy* 14:359-412. [174 ref]
• ***Summary:*** Contents: I. Introduction: World production (958,275,000 bushels in 1960), United States production trends, utilization (processing to obtain oil and meal, hay and green manure). II. Soil and climatic adaptation: Areas of production in the United States, soil requirements, climatic adaptation (effect of temperature on plant growth, effect of temperature on composition of seed, effect of light on plant growth, effect of photoperiod on flowering and maturity, effect of soil moisture on growth). III. Time of planting and varietal adaptation: Effect on plant characters (maturity, plant height, lodging, seed quality, size of seed, seed yield), effect on composition of the seed. IV. Planting methods and equipment: Seedbed preparation (conventional, minimum tillage, deep tillage), row width and planting rate (row width, planting rate), double cropping (after fall-sown grain crops, after peas), special methods of planting, types of equipment. V. Rotation practices and erosion control: Effect on soybean yields, effect on the following crop, effect on weed population, soil residues from herbicides, erosion control. VI. Weed control: Effect of planting time on plant growth and weed competition, methods of cultivation, chemical weed control (pre-emergence herbicides, post-emergence herbicides). VII. Seed quality and seed treatment: Factors affecting seed quality and germination, seed treatment. VIII. Nutrient requirements: Nitrogen requirements and nodulation (effectiveness of nodulation as a source of nitrogen, methods of inoculation, survival of bacteria in the soil, effect of seed treatment on inoculation, effect of nitrogen applications), liming and pH levels (pH and plant development, calcium and magnesium requirements), phosphorus, potassium, trace elements, fertilizer practices and recommendations. IX. Water requirements and utilization: Water needs in relation to plant growth and development, irrigation and soil management. X. Growth-regulating chemicals. XI. Harvesting: When to harvest, harvesting methods. XII. Seed storage. XIII. Discussion. The USA now produces about 57% of the world's soybeans, followed by China (PRC; about 33%), Indonesia, Japan, Korea, USSR, Brazil, and Canada, in that order. By 1920, U.S. production was 3,000,000 bushels and the leading states were North Carolina, Virginia, Alabama, Missouri, and Kentucky–North Carolina producing 55% of the total. By 1931, the center of production had shifted to the North Central States, where it is at present. Address: 1. United States Regional Soybean Lab., Urbana, Illinois; 2. Stoneville, Mississippi.

842. Ontario Soya-Bean Growers' Marketing Board. 1962? About soybeans: "A know your industry presentation." Chatham, Ontario, Canada. 12 p. Undated. 23 x 11 cm.
• ***Summary:*** Contents: A message from Dick Smith, Chairman, OSGMB. The big three: Soybeans, soybean oil, and soybean meal. Other soybean products: Soybean flour, milk, cheese (tofu), sauce, and sprouts. Where soybeans are grown worldwide. The position of soybeans in world fats

and oils production. The import and export pictures in 1961. Production of soybeans by county in Ontario. Marketing the crop. Soybean grades. Activities of OSGMB.

In 1961 Canadian soybean production accounted for only 30.5% of Canada's need for soybean oil, and 31% of the country's needs for soybean meal; the rest had to be imported. In 1954, in order to establish a healthy market situation, OSGMB initiated a soybean export program. "The establishment of this 'second market' has proven its intended worth in helping to maintain price levels in Canada. In 1961, Canadian exports of soybeans and the bushel equivalent of meal and oil totalled 11.7 million bushels." Address: Box 668, 143 Wellington St. West, Chatham, Ontario, Canada.

843. Burnett, Alvin A. 1963. Fats and oils: A review of recent world trends in production, trade and consumption with some notes on the Canadian industry. 57 p. [10 ref]
• ***Summary:*** Contents: Introduction. 1. Trends in production of fats and oils. 2. World trade in fats and oils. 3. World utilization and consumption of fats and oils. 4. Some notes on the Canadian fats and oils industry.

Each chapter has at least one substantial section on soybeans and soybean oil. Address: Dep. of Agricultural Economics, Ontario Agricultural College, Guelph, ONT, Canada.

844. Donovan, L.S.; Dimmock, F.; Carson, R.B. 1963. Some effects of planting pattern on yield, per cent oil and per cent protein in Mandarin (Ottawa) soybeans. *Canadian J. of Plant Science* 43(2):131-140. April. [8 ref]
• ***Summary:*** "The performance of Mandarin (Ottawa) soybeans was tested over a 4-year period in fifteen planting patterns resulting from five row spacings (7, 14, 21, 28, and 35 inches) and three plant spacings (1, 2, and 3 inches) within the row. Response of yield and oil percentage [in the seeds] to spacing was considerable. The combination of narrowest row and widest plant spacing within the row (7 x 3) gave the highest yield, whereas the highest per cent oil was obtained from the widest row and the widest plant spacing (35 x 3)."

The best of both yield and oil is probably obtained from a 7 x 4 pattern.

"Protein [content in the seeds] showed less response to spacing. It was highest in the closest spacing... Iodine number did not respond to spacing." Address: Canada Dep. of Agriculture, Ottawa, Ontario, Canada.

845. Barrett, Keith. 1963. Britain: Major growth market? A British economist's view. *Soybean Digest.* May. p. 39-40.
• ***Summary:*** Contents: Introduction (Three reasons for the writer's intense interest in American soybeans and products markets; great potential in the UK). Present handicaps. Import duty structure, Effects of Commonwealth Preference System (soybeans grown in Canada, Nigeria, etc. are preferred). Effects of a change in the preference system. A dilemma for U.S. policy.

"Where the Commonwealth has an overall deficit of an item, Commonwealth production tends to command a premium over the world price, nearly equivalent to the duty preference it enjoys. Soybeans fall within this category. U.K. does import them from Canada and Nigeria but the overall Commonwealth availability is inadequate and the British buyer has also to purchase dutiable non-Commonwealth beans, mostly from the United States." Address: Raw Materials Economist, J. Bibby and Sons Ltd., Liverpool, England.

846. Meals for Millions. 1963. Friendship food for a hungry world. Distribution of relief shipments, September 1946–May 15, 1963. 215 West 7th Street, Los Angeles 14, California. 4 p. Undated. [2 ref]
• ***Summary:*** Total distribution of MPF (Multi-Purpose Food) up to 15 May 1963 was 12,830,416 pounds, comprising 102.6 million meals. Countries receiving over 20,000 pounds, in descending order of amount received, were: India (1,979,748 lb), Korea (1,356,110), Japan (541,102), Hong Kong (394,259), China (358,957, stopped in 1951), Brazil (312,244), Germany (206,185), United States (183,366), Philippines (146,943), Haiti (139,823), France (126,022), Pakistan (101,041), Congo (86,101), Austria (82,159), Tanganyika (77,997) Mexico (65,722) Burma (63,554), Taiwan (58,639), Lebanon (56,910), Canada (51,836), Ceylon (38,428), Israel (38,280), Jamaica (38,171), Greece (38,133), Vietnam (37,524), Italy (36,768), Indonesia (35,873), Jordan (33,375), Hungary (33,165), New Guinea (31,535), Gabon (27,704), Liberia (27,187), Okinawa (23,640), Malaya (23,454), Morocco (22,736), Chile (22,721), Iran (21,482), Peru (21,374), Honduras (21,168), Bolivia (20,860), Nepal (20,626), Borneo (20,053).

The following countries (listed alphabetically) were early recipients of soy-based Multi-Purpose Food from Meals for Millions, and were late in introducing soybeans to the country: Bahamas (received 6 shipments totaling 2,079 lb between 1 July 1960 and 31 Dec. 1962). Basutoland [Lesotho] (received 2 shipments totaling 1,539 lb between 1 July 1960 and 31 Dec. 1962). Bolivia (received 2 shipments totaling 1,634 lb between Sept. 1946 and 30 June 1960). British Honduras (received 5 shipments totaling 11,319 lb between Sept. 1946 and 30 June 1960; renamed Belize in about 1975). Cape Verde Islands (received 1 shipment of 2,007 lb between Sept. 1946 and 30 June 1960; independent since 1975). Caroline Islands (received 2 shipments totaling 2,008 lb between Sept. 1946 and 30 June 1960; renamed Federated States of Micronesia in 1986). Central African Republic (received 1 shipment of 2,025 lb between 1 July 1960 and 31 Dec. 1962). Eritrea (received 1 shipment

totaling 2,025 lb between Sept. 1946 and 30 June 1969). Fiji Islands (received 2 shipments totaling 2,052 lb between Sept. 1946 and 30 June 1969). Finland (received 1 shipment of 2,040 lb between Sept. 1946 and 30 June 1960). Gabon (received 3 shipments totaling 17,660 lb between Sept. 1946 and 30 June 1960). Guam (received 3 shipments totaling 4,995 lb between 1 July 1960 and 31 Dec. 1962). Guadalcanal ([later part of the Solomon Islands] received 1 shipment of 513 lb between Sept. 1946 and 30 June 1960). Iraq (received 3 shipments totaling 8,122 lb between Sept. 1946 and 30 June 1960). Jordan (received 9 shipments totaling 28,839 lb between Sept. 1946 and 30 June 1960). Liberia (received 10 shipments totaling 21,949 lb between Sept. 1946 and 30 June 1960). Luxemburg [Luxembourg] (received 1 shipment of 5,130 lb between Sept. 1946 and 30 June 1960). Marshall Islands (received 1 shipment of 739 lb between Sept. 1946 and 30 June 1960). Mozambique (received 3 shipments totaling 7,641 lb between Sept. 1946 and 30 June 1960). New Hebrides [later Vanuatu] (received 1 shipment of 513 lb between Sept. 1946 and 30 June 1960). Oman (received 4 shipments totaling 10,659 lb between Sept. 1946 and 30 June 1960). Panama (received 1 shipment of 96 lb between Sept. 1946 and 30 June 1960). Samoa (American) (received 6 shipments totaling 6,480 lb between Sept. 1946 and 30 June 1960). Somali (received 1 shipment of 270 lb between 1 July 1960 and 31 Dec. 1962). Swaziland (received 1 shipment of 621 lb between 1 July 1960 and 31 Dec. 1962). Tonga Islands [Kingdom of Tonga, independent since 1970] (received 5 shipments totaling 6,723 lb between 1 July 1960 and 31 Dec. 1962). Virgin Islands [USA] (received 2 shipments totaling 2,113 lb between Sept. 1946 and 30 June 1960). Western Samoa [independent since 1962] (received 1 shipment of 1,026 lb between 1 Jan. 1963 and 15 May 1963).

Other countries which received MFM shipments by 15 May 1963 are: Afghanistan, Algeria, Angola, Argentina, Basseterre [Probably refers to the island, Basse-Terre (or Guadeloupe proper) which is the western half of Guadeloupe, separated from the other half, Grand-Terre, by a narrow channel. As of 1994 Guadeloupe is a French Overseas Department. Probably not the seaport on St. Christopher Island, capital of St. Christopher-Nevis–since that is not a country], Belgium, Cambodia, Republic of Cameroun [Cameroon], Canal Zone, Colombia, Costa Rica, Cuba, Czechoslovakia, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, England, Eritrea, Ethiopia, French West Indies, Gambia, Ghana, Goa [former Portuguese possession; annexed by India in 1962; became a state of India in 1987], Grenada, Guatemala, Haute Volta [Upper Volta, later Burkina Faso], Iraq, Kenya, Laos, Libya, Macao, Madeira Islands [autonomous region of Portugal in east Atlantic Ocean, 600 miles due west of Casablanca, off the coast of Morocco], Mauritius Islands, Montserrat [island in the West Indies], Netherlands, Nicaragua, Nigeria, Northern Rhodesia [later Zambia], Nyasaland [later Malawi], Oman, Paraguay, Persian Gulf, Poland, Puerto Rico, Ruanda Urundi, Rumania [Romania], Ryukyu Islands, American Samoa, Santa Lucia [probably Saint Lucia island in the Caribbean], Sicily, Sierra Leone, South Africa, Southern Rhodesia [later Zimbabwe], Spain, Surinam [Suriname], Switzerland, Thailand, Trieste [Italy], Tunisia, Turkey, Uganda, Uruguay, Venezuela, Yugoslavia.

Note: This is the earliest document seen (Aug. 2009) concerning soybean products (soy flour in MPF) in British Honduras [Belize], Cape Verde, Caroline Islands, Eritrea, Iraq, Lesotho, Liberia, Luxembourg, Marshall Islands, New Hebrides [Vanuatu], Oman, Samoa (American), Tonga, or Western Samoa. Soybeans as such have not yet been reported in these countries.

This document contains the earliest date seen (Feb. 2009) for soybean products (soy flour in MPF) in Bolivia (June 1960), British Honduras (June 1960), Cape Verde (June 1960), Central African Republic (Dec. 1962), Eritrea (June 1960), Iraq (June 1960), Lesotho (Dec. 1962), Liberia (June 1960), Luxembourg (June 1960), Marshall Islands (June 1960), New Hebrides (June 1960; Vanuatu), Oman (June 1960), Samoa (American) (June 1960), Tonga (Dec. 1962), or Western Samoa (May 1963). Soybeans as such had not yet been reported by that date in these various countries. Address: Los Angeles, California.

847. *Foreign Agriculture.*1963. Canadian soybean support price announced. 1(25):15-16. June 24.
• ***Summary:*** Canadian Minister of Agriculture announced that the price support for 1963-crop soybeans will be C$2.15 (U.S. $2.00) per bushel on Canada grade No. 2 or better.

848. Fisher, J.E. 1963. The effects of short days on fruitset as distinct from flower formation in soybeans. *Canadian J. of Botany* 41(6):871-73. June. [6 ref]
• ***Summary:*** The "soybean is normally regarded as a short-day plant... While flowering occurs most rapidly under short days it will occur with prolonged exposure to long days..."

"The purpose of this communication is to show that flowering plants can be induced to set fruit by as few as three short-day cycles inserted into an otherwise long-day regime, and that the plants will continue to set fruit for the remainder of the reproductive life of the plant regardless of the subsequent photoperiod." Address: Research Branch, Canadian Dep. of Agriculture, Ottawa, Canada.

849. *Foreign Agriculture.*1963. Canadian oilseed plantings up sharply. 1(34):15. Aug. 26.
• ***Summary:*** Total flaxseed acreage for 1963 in Canada amounted to 1,685,400 acres. Rapeseed had 483,500 acres, soybeans took up 228,000 acres, and there were 38,000 acres of sunflowerseeds.

850. Cartter, Jackson L.; Hartwig, Edgar E. 1963. The management of soybeans. In: A.G. Norman, ed. 1963. The Soybean. New York: Academic Press. x + 239 p. See p. 161-226. [209 ref]

• ***Summary:*** Contents: 1. Introduction: World production, United States production trends, utilization (processing to obtain oil and meal, hay and green manure). 2. Soil and climatic adaptation: Areas of production in the United States, soil requirements, climatic adaptation (effect of temperature on plant growth, effect of temperature on composition of seed, effect of light on plant growth, effect of photoperiod on flowering and maturity, effect of soil moisture on growth). 3. Time of planting and varietal adaptation: Effect on plant characters (maturity, plant height, lodging, seed quality, size of seed, seed yield), effect on composition of the seed. 4. Planting methods and equipment: Seedbed preparation (conventional, minimum tillage, deep tillage), row width and planting rate (row width, planting rate), double cropping (after fall-sown grain crops, after peas), special methods of planting, types of equipment. 5. Rotation practices and erosion control: Effect on soybean yields, effect on the following crop, effect on weed population, soil residues from herbicides, erosion control. 6. Weed control: Effect of planting time on plant growth and weed competition, methods of cultivation, chemical weed control (pre-emergence herbicides, post-emergence herbicides). 7. Seed quality and seed treatment: Factors affecting seed quality and germination, seed treatment. 8. Nutrient requirements: Nitrogen requirements and nodulation (effectiveness of nodulation as a source of nitrogen, methods of inoculation, survival of bacteria in the soil, effect of seed treatment on inoculation, effect of nitrogen applications), liming and pH levels (pH and plant development, calcium and magnesium requirements), phosphorus, potassium, trace elements, fertilizer practices and recommendations. 9. Water requirements and utilization: Water needs in relation to plant growth and development, irrigation and soil management. 10. Growth-regulating chemicals. 11. Diseases: Foliar, root and stem, seed. 12. Insects and spider mites: Leaf feeders, above-ground stem feeders, pod feeders, root feeders. 13. Nematodes: Root knot, cyst, others. 14. Harvesting: When to harvest (moisture content of seed, chemical defoliation, losses from respiration after maturity), harvesting methods (historical, combine harvesting). 15. Seed storage. 16. Discussion. The USA now produces about 57% of the world's soybeans, followed by China (PRC; about 33%), Indonesia, Japan, Korea, USSR, Brazil, and Canada, in that order. By 1920, U.S. production was 3,000,000 bushels and the leading states were North Carolina, Virginia, Alabama, Missouri, and Kentucky–North Carolina producing 55% of the total. By 1931, the center of production had shifted to the North Central States, where it is at present.

The subsection titled "Seed treatment" (p. 193) states: "Seed treatment with a fungicide is not recommended as a general practice when seed with high germination is planted. Stands may be increased by seed treatment when seed having a germination of 85 per cent is planted. Although seed treatment seldom results in increased seed yields,... the improved stands resulting from seed treatment aid in giving soybeans a competitive advantage with weeds. Studies by Howard W. Johnson *et al.* (1954) show that seed may be treated at any time between harvest and planting with equal effectiveness. The most satisfactory time for treating seed would be as it is cleaned. The materials Arasan, Captan, and Spergon have proved to be most satisfactory for treatment of soybean seed. Before any lot of seed is treated, it may be a good practice to check the germination with and without the fungicide to determine the beneficial effect of seed treatment on each seed lot."

The section titled "Harvesting methods: Historical" (p. 219) states: "The earliest harvester designed specifically for soybeans was a two-wheeled, horse-drawn machine which straddled the bean row (Piper & Morse, 1923, p. 94). This special harvester was common in Virginia and North Carolina, but was never commonly used in the North Central States. Harvesting losses ranged from 20 per cent under favorable conditions to as high as 60 per cent under unfavorable (Sjogren, 1939). In small-grain growing areas, the binder and thresher were adapted for soybean harvest. Harvest losses for using the binder or mower for cutting and then threshing ranged from 16 to 35 per cent of the total yield, with an average loss of 24 per cent (Sjogren, 1939).

"The combine harvester was first used for soybeans in the mid-twenties. The combine harvester has been a major factor in the expansion of soybean production. This machine required less labor than earlier methods and was more efficient." Address: 1. Agronomist-in-charge, U.S. Regional Soybean Lab., Crops Research Div., ARS USDA, Urbana, Illinois; 2. Research Agronomist, U.S. Regional Soybean Lab., ARS USDA, Stoneville, Mississippi.

851. Nevins, Allan; Hill, Frank Ernest. 1963. Ford: Decline and rebirth 1933-1962. Vol. 3. New York, NY: Charles Scribner's Sons. xviii + 508 p. See p. 71-73, 323. [531 endnotes]

• ***Summary:*** Of the superb three-volume history of the Ford Motor Co. by Nevins and Hill, this volume contains the most information about Henry Ford's work with soybeans. During the 1930s, Henry Ford had a number of interests and activities outside of auto manufacturing. "One of them was Greenfield Village, where exhibits and historic buildings spoke for Ford to the Public. Its opening in 1933 had been preceded by a decade of collecting and planning on Ford's part." He established four schools in the Village from 1929 to 1943.

"A second project in which Ford was interested was the cultivation and processing of soy beans. He felt that the crop had a great dietary importance, could aid the farmer, and had a definite place in his own business. While he had begun experiments in 1929, they were carried on for some time in an informal fashion at Dearborn. But in 1935 a complete processing plant was established at the Rouge and in 1938 two others began operations at Saline and Milan, Michigan, for the extraction of oil from the bean, and the making of plastic units for Ford cars. These came to include lever knobs, horn buttons, switch handles, and distributor housings. In 1939 the Ford Motor Company grew about 100,000 bushels of soy beans, and bought an additional 500,000 bushels...

"A third and far more extensive activity that commanded Ford's energies was his village industries... During the 1930s Ford unquestionably intensified his interest in small plants. After 1935 no year passed in which he did not found at least one new unit. In six years he constructed 13 (including his two soy bean plants), and in 1938 could contemplate a list of 212 possible sites which E.G. Liebold had prepared. W.J. Cameron in his Ford Sunday Evening Hour and in magazine articles discussed the 'decentralization' which such activity represented. Even *Fortune* picked up the term. 'Mr. Ford now feels that he has learned all centralization can teach,' it remarked late in 1933. 'The next step is decentralization.'

The small plants "were important in that they contributed to the decentralization of Ford's own activity." They "all engaged his attention and even his passionate interest, and gave him less time for the V-8 and the Ford truck."

"The soy-bean processing factories had been discontinued during the war, and in November 1946 the principal one at Saline, Michigan, was sold to a commercial company. Much of the elder Ford's farm land had been put up for sale in the spring of 1946."

Appendix I (p. 478-79) gives very revealing Ford Motor Co. vehicle production statistics by vehicle type for each year, in the USA, Canada, and overseas, each year from 1903 to 1955. Sales of the Ford truck began in 1916, the tractor in 1917, the Lincoln in 1922, the Mercury in 1938, and the Metro-Coach in 1938. In the U.S. Ford's boom years in terms of total vehicles produced were from 1905 (1,599 vehicles) to 1923 (2,120,898 vehicles produced). The company did not surpass its 1923 record until 1955. After 1923 production was static to downhill. In 1927 there was a huge drop to 518,401 vehicles as the company phased out the Model T and prepared to launch the Model A. From 1930 to 1939 (the years when Henry Ford was most interested in soybeans) annual production averaged 855,000 vehicles, or 40% of the 1923 high. In the depths of the Great Depression, in 1932 and 1933, production was only about 400,000 vehicles, roughly 21% of the 1929 figure of 1,870,257. Address: Columbia Univ., New York City, New York.

852. Snell, John Ferguson. 1963. Macdonald College of McGill University: A history from 1904-1955. Montreal, Quebec, Canada: McGill University Press. xv + 259 p. Illust. Index. 24 cm. [30+* ref]
• ***Summary:*** In the chapter titled "Organization and Construction," page 57 states that Macdonald College opened in Nov. 1907. Dr. James W. Robertson, the Acting Principal, called Leonard S. Klinck from the Iowa State College to take charge of Cereal Husbandry. Klinck's residence / house at Macdonald College is described on p. 51.

In the chapter on "Practical Departments," the section on "Agronomy" (p. 91+) notes that the Agronomy Department, originally designated the Cereal Department, was established by Professor Leonard S. Klinck in 1906. The subsection titled "Staff" (p. 94-95) states: "In 1914, Professor Klinck was called to Vancouver to become Dean of the Faculty of Agriculture of the University of British Columbia. From this position he advanced to that of President of the University. His successor in the Chair of 'Cereal Husbandry' in Macdonald was his classmate in the Ontario Agricultural College, James Murray. After four years, Professor Murray left to take charge of the Noble Foundation Farm in Alberta, and Robert Summerby, a member of the first graduating class, was appointed to his successor, with the title of 'Professor of Agronomy.'" Prof. Summerby died in 1946. Prof. Klinck is also mentioned on pages 132 and 188. Address: Canada.

853. *Oleagineux.*1964. Industrie du soja [The soybean industry]. 19(1):41-42. Jan. [2 ref. Fre]
• ***Summary:*** Contents: Worldwide production of soybeans. Predictions for soybean exports. The need for research and the American Soybean Association. The effect of molybdium on soya. Soybean crushers and oil refiners in Canada. Market development in Germany by the Soybean Council of America. Denmark's purchase of soya. Soybean Council fair on Cyprus. Sales in Colombia. Sales in Japan. New uses. Address: Paris.

854. *Soybean Digest.*1964. Seed directory (Ad). Feb. p. 26.
• ***Summary:*** Soybean seedsmen and seed companies are listed alphabetically by state (and within each state alphabetically by city) in the following states: Arkansas, Illinois, Indiana, Iowa, Kansas, Minnesota, Mississippi, Missouri, Nebraska, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Wisconsin, and Ontario (Canada). For each listing is given the amount and varieties of seed available, and whether certified, uncertified, or registered. Most of the entries are for individual farmers. Coker's Pedigreed Seed Co. is listed in Hartsville, South

Carolina. They sell Coker Hampton, Coker Hampton 266, Coker Stuart, and Coker 240.

855. *Soybean Digest.*1964. Seed directory (Ad). March. p. 40.
• ***Summary:*** Soybean seedsmen and seed companies are listed alphabetically by state (and within each state alphabetically by city) in the following states: Arkansas, Illinois, Indiana, Iowa, Kansas, Minnesota, Mississippi, Missouri, Nebraska, North Carolina, Ohio, Oklahoma, South Carolina, Tennessee, Wisconsin, and Ontario (Canada). For each listing is given the amount and varieties of seed available, and whether certified, uncertified, or registered. Most of the entries are for individual farmers. Coker's Pedigreed Seed Co. is listed in Hartsville, South Carolina. They sell Coker Hampton, Coker Hampton 266, Coker Stuart, and Coker 240. Is this the earliest listing seen for Coker (South Carolina) in this directory.

This directory also appears in the April 1964 issue (p. 38).

856. Tregunna, E.B.; Krotkov, G.; Nelson, C.D. 1964. Further evidence on the effects of light on respiration during photosynthesis. *Canadian J. of Botany* 42(8):989-97. Aug. [12 ref]
• ***Summary:*** "Both photosynthesis and respiration are usually studied by measuring either the rate of carbon dioxide fixation or oxygen evolution." This experiment is about an indirect way of measuring photosynthesis using an infrared carbon-dioxide analyzer. Light accelerated carbon dioxide in chlorophyll-rich soybean leaves relative to chlorophyll-deficient leaves. Address: Dep. of Biology, Queen's Univ., Kingston, Ontario.

857. Trip, P.; Krotkov, G.; Nelson, C.D. 1964. Metabolism of mannitol in higher plants. *American J. of Botany* 51(8):828-35. Sept. [26 ref]
• ***Summary:*** "Osmoregulation is the active regulation of the osmotic pressure of an organism's fluids to maintain the homeostasis of the organism's water content; that is it keeps the organism's fluids from becoming too dilute or too concentrated. Osmotic pressure is a measure of the tendency of water to move into one solution from another by osmosis. The higher the osmotic pressure of a solution the more water wants to move into the solution." Osmoregulation is one important way that plants conserve water (Source: Wikipedia, Oct. 2009).

"The wide use of mannitol as an osmoregulator is based on the assumption that it either does not enter living cells, of if it does, it is not metabolized... On the other hand, a number of observations contradict this assumption."

The soybean was one of 26 species used to determine the extent to which higher plants can metabolize mannitol-$C^{14}$. Address: Dep. of Biology, Queen's Univ., Kingston, Ontario, Canada.

858. Larsen, Marion R. 1964. The agricultural situation and crop prospects in Communist China, 1964. *USDA Economic Research Service, Foreign Agricultural Economic Report* No. 20. iv + 10 p. Oct.
• ***Summary:*** The section on "Crop outlook" contains a subsection titled "Soybeans" (p. 403) states: "Acreage of soybeans in 1964 continued to expand, following a substantial reduction in 1962... Yields are expected to exceeded those in 1963, resulting in a larger total harvest. It does not appear, however, that acreage and production will equal that in 1957, although both appear to be the largest since about 1960, when it is believed the crop began to decline."

"Imports of food: Including shipments delivered in 1964, the communist regime has imported over 22 million metric tons of grain [mostly wheat] since 1960 at an estimated cost in excess of $1.5 billion... Various government officials have indicated recently that it is now an economic policy to continue to import the cheaper grains (wheat, corn, barley, etc.) and export the higher priced rice and soybeans. Most of the country's exports of rice would go to soft-currency countries.

"Contracts with Canada and Argentina for grain purchases extend into 1966, and negotiations with France and Australia are expected to result in additional continued imports." Address: Agricultural Economist, Far East Branch, Foreign Regional Analysis Div., USDA, Washington, DC.

859. Ontario Soya-Bean Growers' Marketing Board. 1964. Research on soybeans: Presented to the Honourable Harry Hays, Minister of Agriculture, Ottawa. Chatham, Ontario, Canada. 7 p. Oct. 26. 28 cm.
• ***Summary:*** Ontario's 10,000 soybean growers have assessed themselves via a levy on their Marketing Board in order to study ways to increase soybean yields and expand production. "Soybean production in Ontario has had a phenomenal growth. Production was spurred by the war effort and shortage of fats and oils. Production has been limited to the southern part of the Province of Ontario and to a lesser extent the southern part of the Province of Manitoba, and has reached about one-third of Canada's requirements...

"It is a rarity today in agriculture to find a commodity with so much domestic market potential. Vast deficiencies of protein meals and vegetable oils exist in Canada–it is imperative that every effort be made to fill the gap by domestic production."

Canada presently has to import $60 million worth of soybeans, soy oil and soybean meal. Although exports of soybeans and soybean products total $30 million, this

deficit of $30 million is a major factor in Canada's trade balance with the U.S.

A chart on page 4 shows exports, production, imports, and crushings of whole soybeans only from 1965-1963. Research is needed on weed control in soybeans, and the development of growth regulators that enable the soybean plant to produce less leaves and more pods.

The report closes with the following: "Request: This submission is made to request the government to make more funds available specifically for soybean research, and to place more emphasis on the needs of the soybean industry. Respectfully submitted, F. Hyatt–Chairman, R. Smith, Past Chairman, L. Longhurst–Vice-Chairman K.A. Standing–Secretary-Manager, The Ontario Soya-Bean Growers' Marketing Board." Address: Box 668, Chatham, Ontario, Canada.

860. Ontario Soya-Bean Growers' Marketing Board. 1964. Research on soybeans: Presented to the Honourable William A. Stewart, Minister of Agriculture, Toronto. Chatham, Ontario, Canada. 7 p. Dec. 15. 28 cm.
• ***Summary:*** The contents of this document is identical to that presented to Harry Hays, the Minister of Agriculture in Ottawa on 26 Oct. 1964. Address: Box 668, Chatham, Ontario, Canada.

861. Schwarz, Richard William. 1964. John Harvey Kellogg: American Health Reformer. PhD thesis in modern history, University of Michigan. vi + 504 p. 23 cm. [234 + 1,308 footnotes]
• ***Summary:*** This is one of the finest examples of recent Adventist scholarship. John Harvey Kellogg was born on 26 Feb. 1852 in rural Tyrone Township, Livingston County, Michigan. His parents were John Preston Kellogg and Ann Stanley, his second wife. His birth was spaced almost midway between those of his seven half- and eight full brothers and sisters. Contents: Preface. 1. The making of a health reformer. 2. "What manner of man." 3. Biologic Living: The Kellogg "Gospel of Health." 4. Kellogg and the Battle Creek Sanitarium. 5. Lecturer, author, publisher. 6. Surgeon and inventor. 7. His brother's keeper. 8. Kellogg's break with the Adventist church. 9. Food manufacturer and eugenist. 10. Concluding years. Bibliography: Primary sources (Manuscript collections, books by John Harvey Kellogg, articles by John Harvey Kellogg, newspapers and periodicals, official reports and records, interviews, other primary sources, secondary sources).

Concerning the invention of peanut butter: (p. 283-84): "Another important item in the modern American diet first introduced by Dr. Kellogg was peanut butter. Shortly after 1890, John Harvey had a quantity of roasted peanuts ground up into a paste for use by patients who had difficulty in masticating nuts well enough to digest them properly. Later the doctor decided that roasting caused the fat content of the nuts to begin to decompose and that this irritated the digestive organs. From that time forward Sanitarium peanut butter was made from nuts which had been steam-cooked rather than roasted. Kellogg devised a variety of other nut butters which he claimed were 'sweeter, more palatable, and more digestible' than regular butter. He directed that these nut butters be used as shortening in the preparation of all baked goods produced at the Sanitarium. John Harvey made no attempt to control through patents the production of either peanut butter or any of his other nut butters. He announced that he believed that these were products that 'the world ought to have; let everybody that wants it have it, and make the best use of it.'" Address: Univ. of Michigan.

862. *Soybean Blue Book.*1965. Canadian production [of soybeans, plus bushels crushed, tons of oil produced, and tons of oilcake and meal produced]. p. 41.
• ***Summary:*** This table has two vertical halves. The left half gives Canadian soybean acreage, yield, total production, average farm price, and total farm value ($000) for each crop year from 1941-42 to 1965/66 (preliminary).

During these 21 years, seeded acreage as increased from 10,900 to 265,000 acres, with a peak of 263,000 in 1958-59. Average yield per seeded acre has increased from 19.9 to 30.3 bu/acre, with a peak of 31.3 in 1961-62. Production has grown from 217,000 to a peak of 8,030,000 bushels. Average farm price has risen from $1.73 to a peak of $2.87 per bushel. Total farm value has increased from $1.509 million to a peak of $20.021 million.

The right half gives bushels of soybeans crushed, tons of soybean oil produced, and tons of soybean oilcake and meal produced from crop year 1943-44 to 1964-65 (preliminary).

During this time, the quantity of soybeans crushed has increased from 241,315 to a peak of 19,540,984 bushels. The amount of soybean oil produced has risen from 1,078 tons to a peak of 100,528 tons. The amount of soybean oilcake and meal produced has increased from 6,308 tons to a peak of 464,888 tons.

Note across bottom of left half of table: 1. Most of Canada's soybean crop is grown in Ontario [which extends the furthest south of any Canadian province], but there were also small acreages in other provinces in the years 1942-43 to 1945-46. The totals for Canada include this production. Data from Dominion Bureau of Statistics.

Note across bottom of right half of table: "Compiled from official records of the Dominion Bureau of Statistics, U.S. Department of Agriculture, Foreign Agricultural Service, Fats and Oils Division."

863. *Foreign Agriculture.*1965. West German imports of soybeans hit new record. 3(17):15. April 26.
• ***Summary:*** German imports of soybeans during 1964 rose to a new high of 1.4 million tonnes–29% above those of

1963. Imports to the various countries was as follows: The U.S. sent 1,355,755 tonnes; Canada, 2,293 tons; Brazil, 298 tonnes; Mainland China, 44,597 tons; and others at 1,670 tonnes. The total number of tonnes of soybeans that West Germany imported in 1964 was then 1,404,613 tonnes.

864. *Soybean Digest.*1965. New process for making whole soybeans tasty. April. p. 24.
• ***Summary:*** This new process, which has been patented by Cargill in the USA and Canada, involves treatment of the soybeans by infrared heat to create new snack foods such as roasted and salted soybeans. The process gives the soybean a "toasted, nut-like flavor that is delicious."

865. *Soybean Digest.*1965. Soybean research committee coordinates Ontario work. April. p. 23-24.
• ***Summary:*** At the annual meeting of the Ontario Soya-Bean Marketing Board in Chatham, to Dr. J.W. Tanner (Asst. Prof., Dep. of Crop Science, Ontario Agricultural College, Guelph) said that the newly established soybean research committee "will attempt to coordinate the provincial research at Guelph and Ridgetown and the federal research at Harrow and Ottawa... The big gap in Ontario research must be in physiology at the production level, and this is the area that we in Guelph must concentrate in. Not only will physiology change existing production techniques, it will also change breeding objectives. Every soybean variety and corn hybrid is obsolete. They have been selected on the basis of their ability to yield in a 40-inch row. The 40-inch row evolved because the horse's stomach was 40 inches [wide]..." Chemical weed control has made it possible to grow soybeans in 7- or 14-inch drills or broadcast stands. So now we must redesign our plants, seeking types that perform best in narrow rows. The two basic approaches must be based on plant breeding, and evaluation and use of plant growth regulators. A photo shows Dr. Tanner.

866. *Toronto Daily Star (Canada).*1965. Chicago grain. May 25. p. 10.
• ***Summary:*** For soybeans, soybean oil, and soybean meal, the following prices are given: Opening price for each commodity from July to December of last year, and on to March of this year. Plus: Monday close: High, low, and close for the day.

867. Dechaine, R.C.; Callaghan, R.W. Assignors to General Mills, Inc. 1965. Method and apparatus for processing protein fiber. *Canadian Patent* 718,858. Sept. 28. Summarized in Soybean Digest, Feb. 1966, p. 52. *

868. National Soybean Processors Association. 1965. Year book, 1965-1966 (Association year). Chicago, Illinois. 63 p.
• ***Summary:*** On the cover (but not the title page) is written: "Year Book and Trading Rules, 1965-1966." Contents: Constitution and by-laws and code of ethics. Officers, directors and committees for 1965-66. Membership of the National Soybean Processors Association. Trading rules on soybean meal. Appendix to trading rules on soybean meal: Official methods of analysis (moisture, protein, crude fiber, oil {only method numbers listed}, sampling of soybean meal {automatic sampler, probe sampler}). Trading rules on soybean oil. Definitions of grade and quality of export oils. Tentative soybean lecithin specifications. Appendix to trading rules on soybean oil: Uniform sales contract, grading soybean oil for color (N.S.P.A. tentative method), methods of analysis (A.O.C.S. official methods): Soybean oil, crude; soybean oil, refined; soybean oil, refined and bleached; soybean oil for technical uses; soap stock, acidulated soap stock and tank bottoms (only method numbers listed).

The section titled "Officers, directors, and committees" (p. 12-15) states: President: Robert G. Houghtlin. Secretary: J.W. Moore. Treasurer: R.E. Fiedler. Executive Committee: L.W. Andreas, Chairman, Wilfred F. Carle, T.W. Bean, B.A. Townsend (term ending Sept. 1966). J.W. Moore, M.D. McVay, R.E. Fiedler, E.B. Copeland (term ending Sept. 1967). R.G. Houghtlin.

Board of Directors: Chairman of the board: L.W. Andreas. Vice chairman of the board: T.W. Bean. Immediate past chairman of the board: S.E. Cramer. (Term expiring Sept. 1966): R.A. Denman, Joe C. Givens, R.G. Golseth, Floyd E. Hiegel, H.D. Rissler, R.B. Williams. Term expiring Sept. 1967: T.J. Barlow, Elmer L. Buster, Elster B. Copeland, F.L. Morgan, H.R. Scroggs, B.A. Townsend. Term expiring Sept. 1968: Donald B. Walker -> Win Golden, Wilfred Carle, Arthur Frank, M.D. McVay, William King Self, Harry E. Wiysel. General counsel: Raymond, Mayer, Jenner & Block, Chicago, Illinois. Washington counsel: Sellers, Conner & Cuneo, DC. Washington representative: George L. Prichard, DC. Managing director, National Soybean Crop Improvement Council: Robert W. Judd, Urbana, Illinois.

Standing committees: For each committee, the names of all members (with the chairman designated), with the company and company address of each are given–Traffic and transportation. Technical. Oil trading rules. Industrial oil. Lecithin. Meal trading rules. Uniform rules and standards for soybean meal. Crop improvement council. Soybean research council. Soybean grades and contracts. Safety and insurance. Regional: Illinois, Indiana, Ohio, Kentucky, and eastern Missouri; Iowa, Minnesota, Nebraska, the Dakotas, Kansas, and Western Missouri; Mississippi River Delta Sections.

The following organizations, and individuals are members of NSPA: Allied Mills, Inc., Chicago, Illinois; Taylorville, Illinois; Guntersville, Alabama. Archer-Daniels-

Midland Co., Minneapolis, Minnesota; Decatur, Illinois; Mankato, Minnesota; Fredonia, Kansas; Bloomington, Illinois. Arkansas Grain Corp., Soybean Division, Stuttgart, Arkansas (Wilfred F. Carle); Helena, Arkansas (W.E. Higginbotham). Big 4 Co-op. Processing Assn., Sheldon, Iowa (Kenneth J. McQueen). Buckeye Cotton Oil Div. of, The Buckeye Cellulose Corp., Cincinnati Ohio (R.B. Williams); Little Rock, Arkansas; Augusta, Georgia; Memphis, Tennessee. Cargill, Inc., Minneapolis, Minnesota (M.D. McVay, Jay Haymaker); Chicago, Illinois (Robert Cournoyer); Cedar Rapids, Iowa (C.W. Bohlander); Des Moines, Iowa (W.J. Wheeler); Fort Dodge, Iowa (George J. Cox); Sioux City, Iowa (A.L. Peterson), Washington, Iowa (William R. Matson); Wichita, Kansas (Ralph S. Moore); Memphis, Tennessee (Philip St. Clair); Norfolk, Virginia (D.H. Leavenworth). Central Soya Co., Inc., Fort Wayne, Indiana (B.A. Townsend); Decatur, Indiana (T.H. Alwein); Indianapolis, Indiana (R.E. Syster); Chicago, Illinois (Willard C. Lighter); Gibson City, Illinois (George R. Walter); Belmond, Iowa (J.R. Wright); Bellevue, Ohio (Harry Stokely); Marion, Ohio (Leroy Rich); Chattanooga, Tennessee (Jack Rosenberger). Delphos Soya Products Co., Delphos, Ohio (Floyd E. Hiegel). Delta Cotton Oil and Fertilizer Co., Jackson, Mississippi (Alfred Jenkins). Farmers Grain Dealers Assn. of Iowa (Cooperative) Soybean Processing Division, Mason City, Iowa (H.D. Rissler). Farmers Union C.M.A. [CMA], St. Joseph, Missouri (Arthur E. Frank). Fremont Cake & Meal Co., Fremont, Nebraska (Harry E. Wiysel). Galesburg Soy Products Co., Galesburg, Illinois (Max Albert & Regi Simon -> Elnathan Anderson, Box 711). General Vegetable Oil Co., Fort Worth, Texas (J.D. Morton). Gooch Milling & Elevator Co., Lincoln, Nebraska (M.R. Eighmy). Grain Processing Corp., Muscatine, Iowa (G.A. Kent, F.J. Prochaska, H.P. Woodstra). Honeymead Products Co., Mankato, Minnesota (L.W. Andreas, W.B. Cox, J.I. Maslon, C.T. Mullan, L.K. Rasmussen); Huegely Iowa Milling Co., Cedar Rapids, Iowa (Joe Sinaiko, Bob Scroggs, Les Liabo). Kansas Soya Products Co. (The), Emporia, Kansas (Elmer L. Buster). Lauhoff Grain Co., Danville, Illinois (Ralph G. Golseth, Loren R. Larrick, Laurie J. Slocum). Marshall Mills Co., Marshalltown, Iowa (J.B. Saccaro). Minnesota Linseed Oil Co., Minneapolis, Minnesota (R.J. Lindquist, Jr.). Mississippi Cottonseed Products Co., Jackson, Mississippi (H.E. Covington). Missouri Farmers Assn., Grain Div., Mexico, Missouri (Kermit F. Head). Owensboro Grain Co., Owensboro, Kentucky (William M. O'Bryan). Paymaster Oil Mill Co., Houston, Texas (T.J. Barlow, C.R. Bergstrom); Phoenix, Arizona (O.C. Harris); Jackson, Mississippi (John Bookhart). Perdue (A.W.) & Son, Salisbury, Maryland (Robert L. Brodey). Planters Industries, Inc., Rocky Mount, North Carolina (W.T. Melvin). Planters Manufacturing Co., Clarksdale, Mississippi (A.K. Shaifer). Quincy Soybean Products Co., Quincy, Illinois (Theodore W. Bean, John Franks). Ralston Purina Co., St. Louis, Missouri (Donald B. Walker, W.L. Golden); Kansas City, Missouri (A.V. Couch); Bloomington, Illinois (R.C. Witte); Decatur, Illinois (R.E. Baer); Lafayette, Indiana (A. Hardy); Iowa Falls, Iowa (W. Bower); Louisville, Kentucky (J. Gardner); Raleigh, North Carolina (J.L. Bumgardner); Memphis, Tennessee (J.K. Sartain). Riverside Oil Mill, Marks, Mississippi (William King Self). Sisketon, Missouri (P.B. Bartmess). Southern Cotton Oil Div., Hunt Foods and Industries, Inc., New Orleans, Louisiana (F.L. Morgan); Newport, Arkansas (Jerry Jeffrey); Macon, Georgia (M.S. Long); Greenville, Mississippi (M.D. Kolb); Goldsboro, North Carolina (W.W. Davis). Southern Soy Corp., Estill, South Carolina (R.A. Denman). Southern Soya Corp. of Cameron, Cameron, South Carolina (Charles Everett Bullard). Staley (A.E.) Manufacturing Co., Decatur, Illinois (J.W. Moore, E.C. Lane, H.E. Lents); Painesville, Ohio (D.J. Hopkins). Swift & Co., Chicago, Illinois (Scott E. Cramer, W.W. Moore). Townsends, Inc., Millsboro, Delaware (P.C. Townsend). Tri-County Co-op Soybean Assn., Dawson, Minnesota (Joe C. Givens). West Tennessee Soya Mill, Inc., Tiptonville, Tennessee (Tyler Terrett). Yazoo Valley Oil Mill, Inc., Greenwood, Mississippi (N.F. Howard).

Associate Members: American Feed Stores Home Organization, Inc., Minneapolis, Minnesota. Anderson Clayton & Co., Foods Div., Dallas, Texas. Armour & Co., Chicago, Illinois (Harry K. Bean [crossed out]). Capital City Products Co., Div. of Stokely-Van Camp, Inc., Columbus, Ohio. Cereales y Concentrados, Mexico City, Mexico (Francis Tovar [crossed out]). Colchester Processing Co., East St. Louis, Illinois [crossed out]. Cooperative Mills Inc., Baltimore, Maryland. Corn Products Co., New York City, New York (R.W. List). General Mills, Inc., Kankakee, Illinois (Gerald G. Wilson) [handwritten in]. Grasas Vegetales, S.A., Guadalajara, Jalisco, Mexico (Mr. Collighon) [handwritten in]. Greendale Soy Products, Inc., Kinmundy, Illinois (Elwin G. Ingram) [handwritten in]. Glidden Co. (The), Durkee Famous Foods, Div., Chicago, Illinois (Gerald J. Daleiden). Hartsville Oil Mill, Hartsville, South Carolina (Edgar H. Lawton, Jr.). Huegely Elevator Co., Nashville, Illinois (J.W. Huegely). HumKo Products– Div. of National Dairy Products Co., Memphis, Tennessee (Sam Cooper). Kraft Foods Div. of National Dairy Products Corp., Chicago, Illinois (G.M. Gibson). Lever Bros Co., New York City, New York. Maple Leaf Mills Ltd., Toronto, Ontario, Canada (W.G. Milliken) [handwritten in]. Nebraska Consolidated Mills Co., Omaha, Nebraska [crossed out]. Pacific Vegetable Oil Corp., San Francisco, California. Procter & Gamble Co. (The), Cincinnati, Ohio. Quaker Oats Co. (The), Chicago, Illinois. Spencer Kellogg Div. of Textron Inc., Buffalo, New York. Supersweet Foods Div., International Milling Co., Minneapolis, Minnesota. Valley Mills, Vicksburg, Mississippi. Wesson Div., Hunt Foods and

Industries, Inc., Fullerton, California. Ralph Wells & Co., Monmouth, Illinois (Willis H. Wells). Address: 3818 Board of Trade Building, Chicago 4, Illinois.

869. Pogeler, Glenn H. 1965. What the Soybean Council is doing for you. *Soybean Digest.* Sept. p. 38-40.
• ***Summary:*** "Just a few short years ago, Howard Roach had a dream and it was about Spain. His research showed that the per capita consumption of edible oils was pitifully low in that country. Because Spain was almost entirely dependent on the olive crop as a source of edible fat, she was finding her supply of fats for the population always at a low level. Because olives are a tree crop, the production is based on a cycle of on one year, and off the next. This makes a tremendous fluctuation in supply from year to year.

"Howard Roach convinced the Spanish government that a program of supplementing their olive oil supply with soybean oil would make it possible to increase the per capita consumption of oil for the benefit of all. This would also allow Spain to continue her normal exports of olive oil which were needed to produce foreign exchange to enable them to continue the industrial expansion of the nation.

"Spain negotiated a P.L. 480 agreement, and for several years bought soybean oil under P.L. 480 [using local currency, pesetas]. As her financial situation improved, she was able to switch to dollar purchases and today, Spain is the largest buyer of soybean oil from the United States."

"Iran is another example of a country which originally began by buying U.S. soybean oil under P.L. 480 and has now switched to dollar purchases. Iran, in the fiscal year ending 1960, took from the United States 11,000 metric tons of soybean oil and, just 5 years later, is expected to import 45,000 metric tons."

"India is our newest large buyer of soybean oil and last fall signed an agreement with the U.S. government to take in approximately 75,000 tons..." Other users of U.S. soybean oil this past season include Pakistan, Greece, Guinea, Iceland, Tunisia, Egypt, Sierra Leone, Yugoslavia, Chile, Taiwan and several others.

"Europe and Canada are the major dollar buyers of U.S.-produced soybean oil." Major buyers of U.S. soybeans are Japan, Netherlands, Canada, West Germany, Denmark and many other countries.

"Spain is building up a crushing industry and, by the end of 1965, is expected to be able to crush very close to 700,000 metric tons of oilseeds per year..."

Soybean exports will top 200 million bushels this year and are expected to continue to rise. "Latest government estimates indicate that approximately 2 million tons of soybean meal will find their way overseas from the 1964 crop of soybeans. This is another record breaker with France, Germany, Netherlands, Canada, Belgium, Yugoslavia, Italy, Denmark, and Spain being the major users.

There has been a tremendous expansion in the exports of U.S. soybeans and soybean products. The Soybean Council of America deserves part of the credit. "In my travels overseas, it seems as though everyone is talking about soybeans and soybean products."

Also discusses how the Soybean Council operates and is financed, its relationship to USDA's Foreign Agricultural Service, its overseas offices, some of its problems, and reasons for expanding the program. A portrait photo shows Glenn Pogeler. Address: President, Soybean Council of America, Inc.

870. *Foreign Agriculture.*1965. The export and promotion of U.S. oilseeds and oilseed products. 3(48):10-12. Nov. 29.
• ***Summary:*** "U.S. oilseeds and oilseed products have continued as the nation's top dollar export earner of all agricultural commodities in the past year–a firm member of the 'billion dollar club.' FY [fiscal year] 1965 was a record export year with $1.1 billion total trade up 30 percent over 1963-64 and over 90 percent represented dollar business... Most of the 'nondollar' exports were soybean and cottonseed oils that moved under Public Law 480."

The year 1964-65 was a record year for exports of soybeans and soybean products. Leading importers of U.S. soybeans (in million bushels) were Japan (48.4), Canada (33.9), Netherlands (26.9), and West Germany (22.4). Leading importers of U.S. soybean meal (in 1,000 tons) were France (358.4), West Germany (300.7), Canada (249.4), and Netherlands (245.2). Leading importers of U.S. soybean oil (in million lb) were Spain (239.5), Pakistan (195.2), India (137.0), Morocco (79.5), Iran (70.7), Greece (54.7), Israel (42.9), and Yugoslavia (41.7).

"In Japan, one of the largest U.S. markets, continued check sampling at the rate of 5-10% is being made on imports to insure that the same quality of beans purchased is actually shipped and that U.S. exporters are informed of low-quality shipments. The American Soybean Association, through the Japan Oilstuff Inspectors Corporation, points out specific shipments of low quality thus allowing ASA to back up requests for exporters to maintain grade standards.

"ASA sponsored trips of two teams of Japanese Soybean Crushing Association officials to the United States in 1965 (the larger team came at its own expense) to view U.S. soybean production, marketing, and shipping methods. Since then, Japanese crushers have had a better understanding of the dependable supply and quality of U.S. soybeans."

871. Pillay, D.T.N. 1965. Responses of soybean seedlings to N-dimethyaminosuccinamic acid, a growth retardant. *Canadian J. of Botany* 43(11):1477-78. Nov. [3 ref]
• ***Summary:*** This acid (also called "B-nine") is reported to retard growth of the shoot of some ornamental and fruit plants when applied as a foliar spray. This experiment

confirmed the reports and elaborated on them. Address: Dep. of Biology, Univ. of Windsor, Windsor, Ontario.

872. *Quick Frozen Foods.*1965. The Rich Products story: It surges with the strength and vigor of the mighty waterway on whose shore it makes its home. 28(5):139-62. Dec. Also repaginated and reprinted by Rich Products Corp.
• ***Summary:*** Rich Products, a 20th century pioneer and leader in frozen food specialties, now in its 21st year of operation, is located on the banks of the Niagara River above Niagara Falls. "When the Buffalo concern introduced its Whip Topping as a 'wartime replacement' in 1945, the frozen food industry was doing a total annual volume of less than $200,000,000 a year. Today the industry is generating more than $5,000,000,000 in sales annually. Included in the story are bits of history.

"The fledgling Buffalo concern did $28,000 worth of business in 1945. Today its total sales are exceeding $25,000,000 a year. The largest portion of sales are in the frozen food division, the remainder in dry Coffee Rich, Whip Topping, and the fluid milk operation."

The two opening pages (printed with black and blue, then black and red ink) showcase Rich's many non-dairy products–mostly frozen–such as Rich's Whip Topping, Non-Dairy Coffee Rich, Sundi-whip. Photos show: (1) Bob Rich seated at his desk. (2) Small portrait photos of Herb Kusche, Jerry Hannon, Joe Robida, Ed Andrews, Rex Diamond, Bill Meyers, Oscar Albert PhD, Jo Ann Lang, Bill Wright, Dick Middleton, Bob Steele, Gordon Tebb. (3) Six individual photos of products (p. 144). (4) Rich's West Palm Beach, Florida, plant that makes Frozen Chocolate Eclairs. Robert E. Rich, Jr., vice-president of Rich Products of Canada, Ltd., Rich's plant in Ft. Erie, Canada (built in March 1964). (4) Frozen food trucks. Many shots of the inside of Rich's plants.

Throughout the story are many pages of congratulatory ads, big and small, from suppliers, distributors, contractors, packagers and container manufacturers, food brokers, etc. On the last page is a letter of thanks from Bob Rich (typed, with signature on letterhead) to all the above companies and individuals that have contributed to the growth of Rich Products over the past 21 years. Address: Buffalo, New York.

873. Canada–Dominion Bureau of Statistics, Agriculture Div., Crops Section. 1965? Handbook of agricultural statistics. Part I–Field crops 1908-63. Ottawa, Canada: Queen's Printer and Controller of Stationery. See p. 117. The 6 parts were published from 1955 to 1966.
• ***Summary:*** The earliest year given for soybean production in Manitoba is 1956-57, when 3,200 acres were planted. They yielded 32,000 bushels. In the peak year, 1958-59, 7,000 acres yielded 70,000 bushels. No figures are given after the year 1960-61, when only 6,000 bu were produced on 500 acres. Address: Canada.

874. Ontario Soya-Bean Growers' Marketing Board. 1965? The world of soybeans (Leaflet). Chatham, Ontario, Canada. 6 panels. Undated. 22 x 9 cm.
• ***Summary:*** Two panels list the many food and industrial products that can be made from soybeans. A little cartoon character "SO-ME-O says: Soybeans make life better all over the world." In Ontario, soybean have a total farm value of over $20 million. "Canadian soybean production only accounts for 30.5% of all Canadian needs of soybean oil. Meal production from Canadian soybeans provides only 31% of our requirements." Most of the rest is imported from the USA.

In 1964 81 million pounds of soybean oil was consumed in Canadian margarine and 62.5 million pounds was consumed in Canadian shortening. Address: Box 668, 143 Wellington St. West, Chatham, Ontario, Canada.

875. Bidwell, R.G.S.; Turner, Wendy B. 1966. Effect of growth regulators on carbon dioxide assimilation in leaves, and its correlation with the bud break response in photosynthesis. *Plant Physiology* 41(2):267-70. Feb. [11 ref]
• ***Summary:*** Spraying the leaves of a variety of plants (including soybeans) with indolacetic acid (IIA, a growth regulator) increased the rate of carbon dioxide assimilation from 30% to 100% during the period of 30-60 minutes following the spraying.

"The breaking of dormancy of axial buds in the bean plant was correlated with an increase in the rate of carbon dioxide assimilation in adjacent leaves for a brief period of time." Address: Dep. of Botany, Univ. of Toronto, Toronto 5, Canada.

876. Boyer, Robert A.; Schulz, A.A.; Schatzman, E.A. Assignors to Ralston Purina Company. 1966. Method of manufacturing a protein food product. *Canadian Patent* 727,064. Feb. 1. 10 p. *
• ***Summary:*** Describes production of soy protein fiber.

877. *Soybean Digest.*1966. Best adapted [soybean] varieties. Feb. p. 18.
• ***Summary:*** On a full-page outline map of the eastern half United States (plus Ontario; extending as far west as the western borders of North Dakota, South Dakota, and Nebraska {104º west longitude}) the name of each state appears along with soybean varieties best adapted to various parts of that state. The states shown with varieties are: North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Texas, Minnesota, Iowa, Missouri, Arkansas, Louisiana, Michigan, Illinois, Kentucky, Tennessee, Mississippi, Alabama, Georgia, Ohio, Pennsylvania, New Jersey, Maryland,

Delaware, West Virginia, Virginia, North Carolina, South Carolina, northern Florida.

A sampling of varieties for several states (listed from north to south within each state): Wisconsin–Flambeau, Norchief, Merit, Chippewa 64, Harosoy 63, Lindarin 63. Ohio–Chippewa 64, Harosoy 63, Lindarin 63, Ford, Ross, Clark 63. Ontario: Merit, Hardome, Chippewa, Harosoy, Harosoy 63, Harman. Arkansas: Hill, Hood, Lee, Bragg, Rebel.

878. Kirchner-Dean, Otto. comp. 1966. Soybean processing and utilization: A selected list of references, 1955-1965. *USDA Library List* No. 83. iv + 183 p. Aug. Author index. Subject index. 28 cm. [2218 ref]

• ***Summary:*** Contents: Part I: Processing. Meal. Oil. Beans. Part II: Utilization. Meal in feed. Oil in feed. Beans in feed. Meal in food. Oil in food (General, margarine). Beans in food (general, flour, milk, soy sauce). Meal for industrial uses (general, coatings). Oil for industrial uses (general, coatings, drying oils, paints, resins, soaps). Beans for industrial uses. Part III: Chemistry and research. Amino acids, bibliography, biochemistry, chromatography, composition, enzymes, fatty acids, lecithin, lipides, lipoxidase, organic chemistry, pesticide residues, phosphatides, proteins, research, sterols. Part IV: Miscellaneous. Argentina, Australia, Brazil, California, Canada, China, Congo, cook books, Far East, government loans, India, industry, international trade, Japan, laws and legislation, markets and marketing, nutrition, pesticide residues, varieties.

"All citations except those to patents have been examined and verified by the compiler. Patents cited were obtained from Chemical Abstracts. All foreign language titles have been translated into English with the original language indicated. [Warning: Many patent titles listed in this are different from those appearing on the actual patent.]

"Sources consulted: Agricultural Index, Bibliographic Index, Bibliography of Agriculture, Biological and Agricultural Index, Card Catalog of the National Agricultural Library, Chemical Abstracts, Dissertation Abstracts, Engineering Index, Food Science Abstracts, Journal of the Science of Food and Agriculture, Nutrition Reviews, and Pesticides Documentation Bulletin." Address: National Agricultural Library, Div. of Reference, Special Bibliographies Section.

879. *USDA Economic Research Service, Statistical Bulletin.*1966. U.S. fats and oils statistics 1909-1965. No. 376. 222 p. Aug.

• ***Summary:*** Table 74 (p. 67) gives "Soybeans: Acreage, supply, disposition, and price, 1924-65." The 21 column heads include: Production (increased from 4.9 million bushels in 1924 to 701.9 million in 1964). Exports (began in Oct. 1931, with 2.2 million bu reported for 1931, increasing to 205.9 million bu in 1964; based on inspections by Federal licensed inspectors). Crushings (increased from 0.3 million bu in 1924 to 473.1 million bu in 1964). Average price per bushel received for the season by farmers ($2.46 in 1924, falling to a low of $0.50 in 1931, staying below $1.00 until 1941 except for $1.27 in 1936, first topping $2.00 again at $2.05 in 1944, reaching an all-time peak of $3.33 in 1947, then staying between $2.00 and $2.75 until 1964).

Production of oil (increased from 2 million lb and 7.4 lb per bushel crushed in 1924 to 5,146 million lb and 10.9 lb per bushel crushed in 1964). Production of meal (increased from 8,000 tons and 49.5 lb per bushel crushed in 1924 to 11,286,000 tons and 47.7 lb per bushel crushed in 1964).

Table 86 (p. 76) shows "Soybean oil: Supply and disposition and oil equivalent of exports of soybeans, 191-64." Soybean oil production increased from 2 million lb in 1922 (the earliest year for which figures are reported) to 5,146,000 lb in 1964. Soybean oil imports started at 27 million lb in 1911, dropped slightly for several years, then skyrocketed to 118 million lb in 1915 after the start of World War I, and peaked at 332 million lb in 1917. They were negligible after 1922, when a tariff effectively shut off imports and promoted domestic U.S. soy oil production. The earliest figures for soy oil exports show that 58 million lb were exported in 1919, but in the following years soy oil exports were negligible, and did not top the 1919 figure until 1943. The big increases came starting in 1955 and by 1964 had reached 1,353,000 lb/year. Consumption/disappearance of soy oil in the U.S. was very large during World War I (when the amount consumed equaled the amount imported), then it was very small until the mid-1930s. It grew from then on, first in industrial uses, and after World War II in food uses. It rose from 1,076,000 lb in 1941 to 4,072,000 lb in 1964.

Table 87 (p. 77) shows "Soybean oil: Supply, disposition, and utilization, and oil equivalent of export of soybeans, 1912-1965. Utilization is divided into food uses and nonfood uses. Food uses included (in order or importance in 1917): Cooking and salad oils, shortening, and margarine. Nonfood uses included (with the earliest year reported after each): Soap (1912), paint and varnish (1931), linoleum and oilcloth (1931), resins (1949), other (1931). In 1965 the main food uses (in million lb) were: Shortening (1,471), cooking and salad oils (1,135), and margarine (1,112). In 1965 the main nonfood uses (in million lb) were: Paint and varnish (96), resins (96).

Table 173 (p. 155) lists "Soybeans: United States exports by country of destination, 1947-64." In 1964 the leading importers of American soybeans (in 1,000 bushels) were: Japan (49,298), Canada (34,951), Netherlands (28,066), West Germany (23,325), Denmark (13,444), Italy (10,401). In South America, the leading importer was

Venezuela (1,228). In Eastern Europe it was Poland (1,785) and the USSR (1,320). In Africa it was Morocco (418).

880. *Soybean News.*1966. Leader of U.S.D.A. soybean research [Dr. B.E. Caldwell]. 18(1):1. Oct.
• ***Summary:*** "Dr. Billy E. Caldwell of Beltsville, Maryland, has been appointed Leader of Soybean Investigations in the Crops Research Division, U.S. Department of Agriculture. He succeeds Dr. Robert W. Howell, who is now Chief, Oilseed and Industrial Crops Research Branch."

"The U.S.D.A. has soybean production research personnel in nine states and has state collaborators in about 30 states. The regional research program, which Dr. Caldwell will lead, also includes cooperation with research workers in two Canadian provinces."

"Dr. Caldwell joined the soybean research staff in 1963. He is a native of North Carolina, a graduate of North Carolina State University and received his Ph.D. degree from Iowa State University."

881. Stefansson, B.R. 1966. Altona, a new variety of soybeans. *Canadian J. of Plant Science* 46(6):693. Nov.
• ***Summary:*** "The soybean variety Altona was licensed in Canada in April 1966. Altona represents improvement over other maturity group 00 (earliest group) soybean varieties in yielding ability and in resistance to phytophthora root rot." In Table 1, the yield and composition of Altona are compared with those of Acme, Flambeau, and Erect varieties. It's average yield is 17.6 quintals/ha (1 quintal = 100 kg). The seed contains 40.7% protein and 19.4% oil. Altona originated as a selection from the cross Flambeau x 052-093 in a breeding program at the Univ. of Manitoba. Address: Dep. of Plant Science, Univ. of Manitoba, Winnipeg, MAN, Canada.

882. Stefansson, B.R. 1966. Registration of Portage soybeans. *Crop Science* 6(6):612. Nov/Dec.
• ***Summary:*** Registration No. 58. Portage soybeans originated as an F-4 plant selection from the cross Acme x Comet in a breeding program at the Univ. of Manitoba. Altona was licensed in Canada in April 1964. Address: Research Assoc., Dep. of Plant Science, Univ. of Manitoba, Winnipeg, MAN, Canada.

883. Harsany, Peter. 1966. Free bread for everyman! An essay on world hunger and production requirements. Montreal, Canada: Academic Publishing Co. 111 p. Illust. Map. 22 cm. *
• ***Summary:*** Someday we may be obliged to eradicate all animals to produce enough food for human beings.

884. Roberts, Ivan M. 1966. Soybeans in Canada. Ontario, Canada: Victory Soya Mills, Ltd. 32 p. Summarized as "Ontario growers are world champions" in Soybean Digest, June 1966, p. 26. *
Address: Toronto, ONT, Canada.

885. American Soybean Association. 1967. Soybean Digest Blue Book Issue. Hudson, Iowa: American Soybean Assoc. 170 p. Index. Advertisers' index. 22 cm.
• ***Summary:*** The title page of this year's *Blue Book* states: "Blue Book issue. Vol. 27. March, 1967. No. 6." A table (p. 26) gives world soybean production by continent and country, from 1955-59 to 1966 (preliminary) as follows: North America: Canada, United States, Mexico. South America: Argentina, Brazil, Colombia, Paraguay. Europe: Italy, Romania, Yugoslavia, Other Europe (excluding U.S.S.R.). USSR (Europe and Asia). Africa: Nigeria, Rhodesia, Tanzania. Asia: Turkey (Europe and Asia), China–Mainland, Cambodia, China–Taiwan, Indonesia, Japan, Korea–South, Thailand. Total #1. Total #2.

Soybean production in Mexico increased from about 39,000 bu in 1955-59, to 1,315 in 1964, to 2,205 in 1965 to 4,410 (preliminary) in 1966.

A table (p. 29) gives U.S. exports of soybeans, oil and meal from 1962 to 1965 (preliminary) to the following regions and countries (for marketing years beginning Sept. 1; in bushels): North America: Canada, Mexico, other, total. South America: total. Western Europe: Belgium & Luxembourg, Czechoslovakia, Denmark, Finland, France, Germany–West, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, other, total. Eastern Europe: Czechoslovakia, Hungary, USSR (Europe and Asia), Poland, other, total. Africa, total. Asia and Oceania: Hong Kong, Israel, Japan, Korea–South, Philippines, Taiwan, other, total. Grand total.

Exports of U.S. soybeans to Mexico increased from 33,000 bu in 1962 to 177,00 in 1964. Note: This is the 2nd earliest document seen (Feb. 2009) that gives statistics for trade (imports or exports) of soybeans, soy oil, or soybean meal to Mexico or Central America. Address: Hudson, Iowa.

886. Deveza, Manuel Carneiro. 1967. A cultura da Soja no mundo e o comércio internaiconal desta oleaginosa: Situaçao de Moçambiqe como produtor [World soybean cultivation and international trade in its oil. Mozambique's situation as a producer]. *Gazeta do Agricultor (Mozambique)* 19(214):66-72. March. [Por]
• ***Summary:*** Contents: General considerations. Soybean producing countries and continents and their production in tons (1948-1965). International commerce: importation of soybeans, soy oil, and soybean meal by countries and continents (in 1963 the 5 largest importers of soy oil were Spain, Pakistan, Turkey, Morocco, and Yugoslavia; the 5 largest importers of soybean meal were France, Canada, Germany, England, and Denmark). Value of the seeds, meal,

and oil. Uses of the soybean. Cultivation of the soybean in Mozambique. Potential for soybean culture in Mozambique. Address: Engenheiro agrónomo, Director Serviços de Agricultura, Província de Maçambique, Serviços de Veterinária, Mozambique.

887. *British Vegetarian.*1967. Home-made soya butter. March/April. p. 144.
• ***Summary:*** Mrs. Elizabeth Martyn of Vernon, BC, Canada, has contributed a recipe for making soya butter at home, using 4 tablespoons soya flour, 1 cup soya oil or sunflower oil, and water. Mix and heat. Puree in a blender, then refrigerate. Use like butter.

888. Office of the Chief Economist, Resources and Transportation Studies Section, Ontario. 1967. Soybeans in Ontario: Production, utilization and prospects. Toronto, Ontario, Canada. 40 p. April 25. 36 cm. [10+ ref]
• ***Summary:*** Contents: 1. Soybeans and alternative sources of vegetable oil. 2. Soybeans and soybean products production, consumption and utilization. 3. Soybean varieties and techniques of production. 4. Economic aspects of soybean production. 5. Possibilities of increasing soybean acreage in Ontario. 6. Areas with potential for increased soybean production. 7. Possible effects on soybeans of increasing rapeseed utilization. 8. Conclusion.

Total soybean acreage in Ontario has increased from 154,973 in 1951 to 265,000 in 1965. The two regions of production are the Lake Erie Region (which produced 12.71% of the provincial total in 1965; the largest soybean producing county is Elgin) and the Lake St. Clair Region (which produced 86.38% of the provincial total; the largest producing counties were Kent [94,700 acres], Essex [85,500], and Lambton [48,700]).

"About 70-75% of total Canadian soybean supply is imported (almost entirely from the United States); approximately 80-90% of the supply is crushed domestically, the rest is exported mostly to the United Kingdom" (p. 7).

"The greater part of the crop is sold to the three crushing plants in Toronto (Victory Mills Ltd., Maple Leaf Mills Ltd., and Canadian Vegetable Oils Processing Ltd.). The balance is exported to the United Kingdom where it is accorded preferential tariff treatment... Ontario's production is insufficient to meet the needs of Canadian processors, and large quantities [of soybeans] (65-70 per cent of their total requirements) are imported duty free from the United States" (p. 21-22).

"Conclusion: Ontario has a potential for increasing its soybean acreage, provided that (a) a gradual change in the pattern of crop production will be brought about (reduction of oats and mixed grain area); (b) research will provide higher yielding varieties especially for the area between the 2,500-2,700 heat unit lines; (c) reliable, cheap herbicides will be available; (d) large scale drainage and pasture improvement programs will be carried out; (e) extension efforts will concentrate on disseminating knowledge on adequate methods of soybean growing.

"The striking success of the Corn-Plan launched by the Ontario Government and O.A.C. [Ontario Agricultural College, Univ. of Guelph] indicates that a 'Soybean Plan' might lead to similar results." Address: Toronto, Ontario.

889. Hang, Y.D.; Jackson, H. 1967. Preparation of soybean cheese using lactic starter organisms. I. General characteristics of the finished cheese. *Food Technology* 21(7):95-96. July. [14 ref]
• ***Summary:*** 450 grams of Grade No. 1 dry mature soybeans (obtained from W.G. Thompson & Son, Limited, Blenheim, Ontario, Canada) were soaked and used to make soymilk. Coagulation of soymilk was brought about solely through acid development from *Streptococcus thermophilus.* No coagulants were added.

Note: This is the earliest English-language document seen (March 2007) that uses the term "soybean cheese" to refer to a Western-style soy cheese. It is also the earliest English-language document seen (March 2007) with the term "soybean cheese" in the title.

Note 2. This is the earliest document seen (Jan. 2010) that mentions W.G. Thompson & Son (or Sons) Ltd. in connection with soybeans. Address: Dep. of Dairy and Food Science, Univ. of Alberta, Edmonton, Alberta, Canada.

890. Hang, Y.D.; Jackson, H. 1967. Preparation of soybean cheese using lactic starter organisms. II. Effects of addition of rennet extract and skimmilk. *Food Technology* 21(7):97-100. July. [5 ref]
• ***Summary:*** The starter organism was *Streptococcus thermophilus.* Curd from inoculated milk was cut, cooked, pressed and dried. Effects of acetic acid, calcium sulfate, rennet extract and skimmilk [skim milk] on cheese production were tested. Possible use of *Penicillium roqueforti, P. camemberti* or *Mucor* spp. as starter organisms is mentioned. Showed that a satisfactory soybean cheese could be prepared using a lactic fermentation with soymilk. Address: Dep. of Dairy and Food Science, Univ. of Alberta, Edmonton, Alberta, Canada.

891. U.S. Regional Soybean Laboratory. comp. 1967. Strain index for Uniform Tests 00 to IV, 1939-1966. *RSLM (U.S. Regional Soybean Laboratory Mimeograph, Urbana, Illinois)* No. 231. July. 39 p. Not for publication.
• ***Summary:*** Contents: Introduction, by Richard L. Bernard. Number of strains per test. Number of test locations. Named varieties. Experimental strains (Code letter, agency). Description and history of development of released varieties.

Examples of code letters and agencies: A = Iowa Agr. Exp. Station and U.S.R.S.L. CM = Canada Dept. of Agr., Morden, Mannitoba [Canada]. Cornell = New York Agr. Exp. Station. D = Selections made at Dekalb, Illinois, by C.M. Woodworth, Univ. of Illinois, 1939-40. FC = Forage and Range Research Branch, U.S.D.A. MM = Manchu (Meharry), Purdue University. O = Research Station, Harrow, Ontario. O = Central Exp. Farm, Ottawa, Ontario. OAC = Ontario Agr. College, University of Guelph, Guelph, Ontario. PI = Plant Introduction Investigations, New Crops Research Branch, U.S.D.A. UM = University of Manitoba, Winnipeg. The other Agr. Exp. Stations cooperating with the U.S.R.S.L. were: Purdue (Indiana), Delta Branch (Mississippi), Ohio, Kansas, Illinois, Minnesota, Maryland, Maine, North Dakota, Missouri, South Dakota, Nebraska, Delaware, Wisconsin.

"*In 1939 and 1940, Uniform Tests II, II, and IV were called Uniform Early, Midseason, and Late Tests, respectively" (p. 3).

History of released varieties: A-100 (1964). Adams (1947). Amsoy (1965). Bethel (1961). Blackhawk (1947). Chippewa 64 (1963). Clark (1952). Clark 63 (1962). Custer (1966). Disoy (1966). Ford (1958). Grant (1955). Hark (1966). Harosoy 63 (1962). Hawkeye (1945 & 1947). Hawkeye 63 (1962). Henry (1960). Kent (1960). Lindarin (1958). Lindarin 63 (1962). Madison (1960). Magna (1966). Merit (1959). Monroe (1947). Norchief (1954). Perry (1950). Portage (1964). Prize (1966). Ross (1960). Scott (1958). Shelby (1958). Traverse (1965). Wabash (1947). Wayne (1964).

Note: A soybean strain becomes a variety when it is named and released. Address: Urbana, Illinois.

892. Abraham, F.R.; Fisher, G.A. 1967. Soybean production: Production costs, returns and management practices in southwestern Ontario, 1957-59-65. Ontario, Canada: Ontario Dep. of Agriculture and Food, Farm Economics, Co-operatives and Statistics Branch. 33 p. Aug. (Ontario Farm Economics Studies). 28 cm.

• ***Summary:*** Contents: List of tables. Observations and comments. Introduction. The soybean crop in Ontario. Variations between years in soybean production costs and returns. Variation between producer groups in soybean costs and returns. The effect of management and production practices in soybean production. Soybeans compared with other cash crops in southwestern Ontario. Trends in soybean production costs by years in Elgin County, 1957-1965. Appendix. Address: Ontario.

893. Canadian Committee on Fats and Oils, National Research Council of Canada. 1967. Proceedings of the symposium on fats and oils situation in Canada–Present and projected. Ottawa, Ontario, Canada: Department of Industry, Food Products Branch. 61 p. Held 12 Oct. 1967 in Ottawa, Canada.

• ***Summary:*** This work contains ten papers by various authors. Two are directly related to soya: (1) Production of Vegetable Oils in Canada, by Dr. J.C. Woodward (Research Branch, Canada Dep. of Agriculture, Ottawa). Concerning soybeans: "Breeding projects are carried on at Harrow, Ottawa, and Morden. Emphasis is on early maturity and on protein and oil yields. With our current varieties and management practices, the soybean is a marginal crop in Eastern Quebec and Ontario. Similarly, in the Prairie provinces a few hundred acres are grown in Southern Manitoba and some interest is being shown around Tabor in Southern Alberta.

"My outlook is that we are more likely to succeed in tailoring other agronomically-adapted oilseed crops to compete with soybean oil and meal rather than in developing a soybean adapted to our climatic conditions. Thus I do not anticipate the promotion of the soybean from a minor to a major crop in Canada."

(2) Margarine (abstract of a paper), by Mr. W.E. Jackson (Standard Brands Ltd., Montreal). In 1966 some 145 million lb of edible oils were used to produce 181 million lb of margarine in Canada. "At present soybean oil is the major vegetable oil used in margarine in Canada... The type of oil used is based on quality and price. Soybean oil may be used as the standard to evaluate these factors." Address: Ottawa, Ontario, Canada.

894. Stefansson, B.R. 1967. Reply to questions re soybeans. In: Proceedings of the Annual Conference of Manitoba Agronomists. See p. 26. Held 19-20 Dec. 1967.

• ***Summary:*** "Attempts to grow soybeans on a commercial scale in Manitoba have been made intermittently during the last 30 to 40 years. Mature soybeans have been produced by several growers but yields have been low and significant commercial production has not developed. The principle reasons for low yields probably are climatic factors such as the short growing season, long day length during the summer, and relatively low temperatures especially in the early part of the growing season.

"The soybean is a short day plant. Consequently, the crop requires a longer time to mature in long than in short days. Varieties which will mature satisfactorily at Minneapolis, Minnesota may not even flower when grown near Winnipeg. Only the earliest group of varieties (Group 00) will mature in Manitoba. Consequently, growers are limited to relatively short, low yielding varieties...

"In Manitoba temperatures in the end of May and in June are much below the optimum required for growth of soybeans. Consequently, early growth is poor, the crop usually gets a slow start and weeds often get ahead of the crop. Several soybean breeders have searched for soybean strains which would grow more rapidly at relatively low

temperatures but only minor improvements have been found. Since there appears to be no prospect of major increases in yield (50 to 100%) through improved varieties or better cultural practices, I do not think that significant commercial production of soybeans is likely to develop in Manitoba." Address: Plant Science Dep., Univ. of Manitoba, Winnipeg, MAN, Canada.

895. Curtis, J.D. 1967. Soyabean production practices. *Agricultural Research Institute of Ontario, Annual Report (Toronto, Canada)* 235 p. For 1st April, 1965 to 31st March, 1966. See p. 202-03. *

896. Ontario Soya-Bean Growers' Marketing Board. 1967. A summary of board structure and marketing aspects. Chatham, Ontario, Canada. 6 p. 28 cm.
• ***Summary:*** In the early days of the soybean industry in Canada, marketing the crop was difficult and prices were unstable. "Because of such factors, growers could see beneficial results of a representative organization. After grower concern became widespread, a vote was held in 1949 for the establishment of a marketing board. The vote carried by a majority of over seventy per cent of the eligible growers and the Ontario Soya-Bean Growers' Marketing Board was in business.

"To represent some six thousand growers, directors were elected on the basis of six districts comprising Elgin as District 1; Essex, District 2; Pelee Island, District 3; Kent, District 4; Lambton, District 5 and Middlesex, District 6. Original membership of the local board consisted of eleven directors. Amendments to the Plan due to increased numbers of growers brought present membership up to fifteen directors representing about 10,000 growers.

"The Ontario Soya-Bean Growers' Marketing Plan, under which the board was formed, incorporated a negotiating agency and it is through this that growers have realized the greatest benefits. From its beginning, the board has concentrated its efforts on the area of marketing... Freight rates have been lowered, exports initiated and soybeans were brought under the Federal Agricultural Stabilization Act...

"Operation of the Ontario Soya-Bean Growers' Marketing Board is financed by licence [license] fee only. During the first year, the licence fee was one-half cent per bushel. In 1950 it was raised to one cent and remained there until 1960... In 1960, the fee was reduced to one-half cent per bushel." Address: Chatham, Ontario, Canada.

897. *SoyaScan Notes.*1967. Chronology of Arran Stephens: Early years in preparation for work with natural foods, vegetarianism, and Lifestream Natural Foods Ltd. (Vancouver, then Richmond, BC, Canada). Part I (1944–1967). Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** The focus of Arran's life has been his spiritual practice; his work with food has taken an important supporting role as service to others. He has written his autobiography, published as *Journey to the Luminous: Encounters with Mystical Adepts of our Century* (Seattle, Washington: Elton Wolf Publishing. 1999. 380 p. with 70 black and white photos). An expanded version, titled *Moth & The Flame: Adventures with Spiritual Adepts of Our Time* is now available free of charge on the Web at www.ArranStephens.com.

1944 Jan. 6–Arran Blackburn Stephens is born in Duncan, on southeast Vancouver Island, British Columbia, Canada–at King's Daughter Hospital, about 10 miles from the family farm. He is the youngest of three brothers, the others being John Rutherford Jamieson (Gwen's son from her first marriage. John was born on 20 Sept. 1931 in New Zealand, the son of William John Jamieson, a New Zealand sheep farmer) and Godfrey (born on 28 Oct. 1939). Arran's father, Rupert Edward Cripps Stephens, was born on 4 April 1896 in or near Plymouth, UK. Arran's mother, Gwendolyn Minnie Elise Hopkins was born on 4 Nov. 1909 in Kent, King Co., Washington. Arran's parents run Mountain Valley Farm, the family farm of 89 acres of hard living they inherited from Rupert's father; there they grow field berries. Rupert had been a captain in World War I and saw some brutal action in Belgium and Germany; he would never talk about it. Rupert's father, "Surgeon Commander, Dr. Harold Frederick Dale Stephens," was in the Royal Navy and saw action in the Boer War in South Africa. Arran's paternal grandmother (his father's mother), Agnes Grace Cripps, daughter of Lieut.-General J.M. Cripps and Agnes Grace Cripps, had been born in about 1857 in Peshawar, in India's North-West Frontier (in today's Pakistan). Agnes married Lt. General J.M. Cripps, who had lived in colonial India from 1839 to 1878. General Cripps wrote a book titled *Recollections of My Indian Career,* illustrated with 25 exquisite original watercolors by his wife, Agnes. Aaron later wrote: "In my child's mind's eye, India's mystery beckoned, like a distant voice from a faded dream."

At Mountain Valley Farm, the Stephens family lives in a "hand-hewn log-house, overlooking the Goldstream Valley," surrounded by natural beauty, a waterfall, and wilderness.

1947–When Arran is age 3, the family sells Mountain Valley Farm and moves to Goldstream, about 40 miles south, closer to Victoria, where they wrest Goldstream Berry Paradise farm from the forest. Arran's parents have renounced modern chemicals and mechanization, finding simple, economical methods (such as sawdust mulch and earthworms) to strengthen soil fertility and the health of plants, Rupert's credo is: "Always leave the soil better than you found it." They establish a roadside "berry stand" from which to sell their berries and other produce directly.


1951–Rupert's treatise *Sawdust is My Slave,* is published extolling the methods he had discovered. When not working the land, Rupert wrote the lyrics for hundreds of songs, poems, and articles.

1955–After attending a Christian Bible camp Arran's interest in God begins to awaken. He feels called to the ministry. His dad takes him to a pristine forest behind their farm and tells him: "Arra-boy, this is our church; this is our cathedral."

1957 Jan.–The family (with Arran age 13) sells the farm (Goldstream Berry Paradise) and moves from Vancouver Island to Southern California. "The songwriter in Rupert's heart was restless for fame and Hollywood." The family settled in a "rented palm-shaded hacienda in the Hollywood Hills." Arran quickly learned to his dismay that violent gangs controlled the schools and streets. This urban concrete jungle was a different world.

1959–At age 15, Arran's "secure, trusting world abruptly ended: mum and dad separated" (temporarily). Brother "Godfrey roared off on his Harley motorcycle for New Orleans [Louisiana] and high adventure;" he later became a renowned artist. Confused and desperate, Arran decided to become an artist and poet. He encountered the Beat generation and the counterculture of the 1960s.

1961–Arran (now 17) has one of his poems published in the *Mendicant Poetry Journal.* He struggles to navigate the psychedelic 1960s, becomes a spiritual seeker, reads books of many spiritual traditions, meets Eden Ahbez, the first vegetarian he had ever met, "part of a handful of health and fitness devotees from the Hollywood Hills, including well-known Gypsy Boots and Al Jacobson. But every hope, each oasis, turned into an empty mirage." "Often broke, I slept on the beach, drunk or high on cheap wine or high on drugs, sometimes crawling into a cardboard box to mitigate the winter cold. When hungry, I ate discarded food or begged. When I could I painted. Misery was my companion,... a course which took but two years to break mind, body, and spirit." By age 17 he "was a haggard alcoholic and drug-dazed atheist railing against the Author of pain." One day he tried to end it all in the Ocean waves off Venice Beach in California. But after a momentary experience of serenity, he pulled back from the brink.

Then he heard of a monastic retreat named Fountain of the World in the hills above smoggy Los Angeles. One week after his arrival he had an experience that profoundly changed the course of his life. During an evening group Concentration, he experienced brilliant light and "intoxicating waves of Unconditional Love... This was my first taste of a state of Reality–something beyond the senses; something beyond intoxication; perhaps something I had always been blindly hoping and groping for." Similar experiences returned repeatedly but were not encouraged by his fellow monastics. After two months, and increasing pressure to "renounce the world and become a full-fledged monastic brother," he decides to leave.

1963–In San Francisco, Arran experiences how this spiritual light can miraculously save the life of a person about to be run over by a bus. He "never hesitated to investigate any teacher, religion or teaching." "From 1961 to 1964, with one or two exceptions, the springs of Divine Light all but dried up as this prodigal profligate wandered and squandered the spiritual capital we all come into the world with."

1964 April–Arran's parents, now back together, move back to British Columbia from southern California. They now live in Victoria on Vancouver Island.

1964–Arran (now 20) has several one-man shows of paintings under his belt. He leaves San Francisco for lovely Mendocino County, then, en route to Tangiers, he arrives in New York's Greenwich Village–almost broke. He paints and reads spiritual books. After a two-year lapse he starts daily sitting meditation again. Many brief and isolated inner experiences of light and peace lifted him "above an otherwise sordid existence." Craving discipline and order, he joins a group and for 9 months studies Gurdjieff whose "principal teaching was that we are all 'asleep,' and must awaken in a higher sense through various esoteric practices, including self remembering and sacred dance." He earns money at odd jobs, including as a waiter in a macrobiotic restaurant, the Paradox (owned by Richard Lane). Arran becomes interested in the vegetarian aspect of macrobiotics. He recalls (2006): I "largely ate macrobiotic for years at a stretch, but I also experimented with various diets, such as vegan, mucusless (Arnold Ehret), fruitarian, raw foods, and some fasting." But increasingly he yearns to meet a living perfect master and experience mystical union with God. After reading about Sri Ramakrishna, he gives up his bad habits and returns to being a vegetarian.

"From 1964 to 1965 my life revolved around art and the inner quest. One day, when shown photos of Hazur Baba

Sawan Singh (1858-1948) and his disciple, Kirpal Singh (both great Sikh masters), and given a book by the latter, he is deeply moved. When he learns that Kirpal Singh is alive, he knows has almost found what he has been looking for. Meeting the Master in person became his passion. He writes Kirpal Sing (in India) asking for initiation.

1965 March 28–Arran receives a written reply, with instructions. "I was accepted for initiation... My feet were on the Path at last." He meditates, keeps a diary, and writes questions to his Master. Written answers return. He returns to Vancouver and opens the East West Gallery, eager to save enough money to go to India.

1967 Jan. 20–He departs for India, welcomed by his Master. He stays at the Master's Sawan Ashram, in Shakti Nagar, near Delhi, and has many wonderful experiences, beautifully and humbly described in detail. Most important are love, attending satsang, practicing meditation, not creating either bad or good karma, and weeding out personal shortcomings. Part of the practice is to eat a vegetarian diet and avoid all intoxicants. After exactly 7 transforming months in India he returns home. "Before leaving India, the Master authorized me to begin work as his representative in Western Canada." Continued. Address: Vancouver, BC, Canada.

898. *SoyaScan Notes.*1967. Chronology of the work of Arran Stephens with natural foods, vegetarianism, and Lifestream Natural Foods Ltd. (Vancouver, then Richmond, BC, Canada). Part II (1967–1971). 24 Sept. 1992. Compiled by William Shurtleff of Soyfoods Center.

• ***Summary:*** Continued: 1967–Arran begins his first food business when he starts the Golden Lotus restaurant at 2936 West 4th Ave. (at Bayswater), Vancouver. Serving natural, vegetarian and macrobiotic foods, it is the city's first vegetarian restaurant. Before he left India, his Master had encouraged him to take up this "right livelihood" and promised to extend "all feasible help, both inside and outside." A place was found and the necessary money appeared as if by magic. Most of the workers were spiritual seekers. All lived upstairs, above the restaurant.

Arran was one of the cooks; he had learned how to cook brown rice, veggies, hijiki, wakame and miso soup while working as a waiter at the Paradox Restaurant in New York City in 1964; he learned the rest by trial and error, including the use of macrobiotic and vegetarian cookbooks such as *Vegetarian Cookery,* by Pietro Rotondi, and (later) *Ten Talents* by Frank and Rosalie Hurd.

"Amazingly, the rather monastic rules–including regular meditation and celibacy–were accepted and enthusiastically followed. In the communal setting, all worked without pay for the first 9 months. "Before the year was out, bills and loans were entirely repaid and all began receiving hourly wages, benefits, room and board. The numbers attending our weekly satsangs outgrew the upstairs, and the venue shifted downtown to the YMCA." One photo shows Arran standing in front of the Golden Lotus restaurant in 1968 and another standing inside in 1969.

1968 Oct.–Arran and three others return to India to be with Master Kirpal Singh, having received his written permission. On the way they visit Ram Das (the former Richard Alpert) who was in retreat at his father's large New Hampshire estate. In India Arran lives close to Kirpal Singh. The Master will not initiate those who beg for food, only those who earn an honest living.

1969 March 4.–Arran, with the Master's blessing, marries an Indian woman, Rattan Mala Bagga, age 22, in a traditional Sikh marriage. She comes from a good family, has an M.A. degree, and is a lecturer at a girls' school in Moradabad. The Master, who changes her name to Ratana ("jewel") encourages family life and the tender bonds of matrimonial love and responsibility.

1969 April–Arran and sari-clad Ratana return to Vancouver, Canada, after nearly 6 months in India. He has changed from ascetic to householder. They settle into a little room above the restaurant, sharing a bathroom with 14 others and working, on average, 12-16 hours a day to get

the restaurant firmly established. In May and December, Kirpal Singh writes with wise advice. As a result: "In three months we saved $1,000 to make a down payment on a little two-bedroom house with a garden. Ratana was already pregnant with our first child, and we had had our fill of communal living."

"Considerable agitation began among the more left-leaning workers to turn the Golden Lotus into a commune. After a lot of soul-searching, we decided to make a clean break, and sold the restaurant to the group for a paltry $3,000, wishing them all success." Soon after the Golden Lotus restaurant became defunct.

1970 Jan.–Arran opens a little store named Jyoti Importers and Natural Foods at West 4th Ave., near Yew Street on the same street as the Golden Lotus, but on top of the hill. He sells "Indian bedspreads, clothing, classical musical instruments, and healthy and organic foods. Food soon edged out the other wares. It became obvious that my destined vocation was connected to organic foods and wholistic living." After several years of growth, the business moves into a much larger building at 1813-1817 West 4th Ave., a corner location and opens as Lifestream Natural Foods on 1 Jan. 1971. Then Lifestream expanded to a second store on Broadway at Traflagar (See: *Shared Vision* 1990, p. 9).

1970 April 4–Arran and Ratana's first child is born at St. Paul's hospital in Vancouver by natural childbirth. Master telegrammed. "You may name the baby Shanti" (the ancient Sanskrit word for "peace"). Note: All the Stephens' children were born at this same hospital. Arran writes: "I was present at the miracle of each birth. On the birth of two of our children, Ratana was blessed with the vision of our Master, and she also experienced great light within."

1970 spring–On an impulse, Arran gives half of his business, Jyoti, to Peter Harwood, his friend and fellow disciple of Kirpal Singh; Peter becomes a working partner.

1970 June–Arran attends the founding meeting of Organic Merchants (OM), held outdoors on the side of Mt. Shasta. Lifestream becomes one of the founding members. OM was the first trade association for natural food retailers on the West Coast and the first organic trade association. Arran also remembers OM meetings at Blake Rankin's, at Lifestream, and at Pajaro Dunes.

1971 (1990 Shared Vision article says Lifestream opened 1970 Jan. 1). Jan. 1–Arran opens Lifestream Natural Foods in Vancouver, British Columbia, Canada, just north of the U.S. border, at 1813-1817 West 4th Ave. (at Burrard). It is Canada's first large natural foods retail store. His father suggests the name. "Free fresh carrot juice drew in crowds; an electric powered 20-inch stone-buhr mill, visible through a window from the street, ground tons of fresh whole-grain flour every day; alfalfa sprouts were grown in our nearby warehouse / factory; fresh nut butters were roasted and milled to order; natural candy bars and cookies were extruded and baked; egg-free cakes and muffins popped from the ovens; pies, crunchy granola, bulk foods, and wholesome artisanal breads were baked and sold by the hundreds. These were all firsts in Canada." The inspiration came from many sources, but was not macrobiotic. The Lifestream brand was represented by a woman gathering sheaves of wheat into a basket. "Teachers brought classes of school children on tours to see how wholesome foods were made. The store became so busy that it was often difficult to wade through the crowds of shoppers and hangers-on... Sales doubled every year for seven years, and the business quickly branched out into wholesale distribution."

1971 or 1972–A separate small vegetarian restaurant, named Mother Nature's Inn (MNI) was started as a *separate* business in the rear of the large retail store (on West 4th Ave.) by Victor Yankowich,..." But after about a year MNI was purchased from Victor (for a pittance) for Ratana, who showed her business skills by running it very successfully and profitably. The company's best-known products are its line of Essene sprouted grain breads–moist, heavy, and delectable.

1972–Lifestream opens its own Bread of Life bakery (100% owned by Lifestream) in North Vancouver because of the area's scarcity of organic and natural baked items. The original Lifestream Essene Bread, developed by Arran at that bakery, was one of the Lifestream's first baked products. Essene Bread was always made with organic grain–from the Alvin Scheresky and David Orchard organic grain farms in Saskatchewan province.

A 1971 color photo shows Arran, smiling, holding a loaf of Essene Bread.

1971–At about this time Lifestream Natural Foods Ltd. moves to 724-26 W. 6th Ave., Vancouver 9, BC, Canada.

This was a combination headquarters, warehouse, manufacturing and packaging facility. It housed a flour mill, alfalfa sprout operations, nut butter operation, tamari nut roasting and packaging, plus packaging a wide range of organic grains, beans, nuts, seeds, flours, etc. When this facility opened, the only other Lifestream operation was the retail store.

1971–Since there was a scarcity of natural and organic foods, Lifestream began to do wholesale distribution. Frank Ford, founder of Arrowhead Mills in Texas, appointed Lifestream as distributor in Canada for the entire Arrowhead Mills' range of organic grains, beans, flakes, hot cereals, and flours. Hundreds of products were developed and marketed under the Lifestream brand: Breads, other baked goods, fruit & nut-based energy bars, juices, trail mixes, tamari roasted nuts and seeds, preserves, yogurt, granolas, mueslis, sprouts, soyfoods, expeller-pressed oils, and a wide range of imported Japanese macrobiotic products. During the 1970s Lifestream's profits came from a blend of manufacturing, wholesaling, and retailing–but not even the accountants knew what percentage of the total came from each of these activities. Continued. Address: 724-26 W. 6th Ave., Vancouver 9, BC, Canada.

899. *SoyaScan Notes.*1967. Chronology of the work of Arran Stephens with natural foods, vegetarianism, and Lifestream Natural Foods Ltd. (Vancouver, then Richmond, BC, Canada). Part III (1972–1980). 24 Sept. 1992. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Continued: 1972–A third partner, Louis Kiraly, joins Lifestream; he, too, is a disciple of Kirpal Singh. Louis contributed part of his outside job wages to help support the business during the first year. The three partners become equal owners of the company, which was incorporated at about this time as Lifestream Natural Foods, Ltd.–a limited corporation.

1972 Nov.–Sant Kirpal Singh visits Vancouver on his third world tour. He visits Arran and Ratana's home, and encourages Arran to build Lifestream into a large, successful business. Doing such service need not interfere with his spiritual practice.

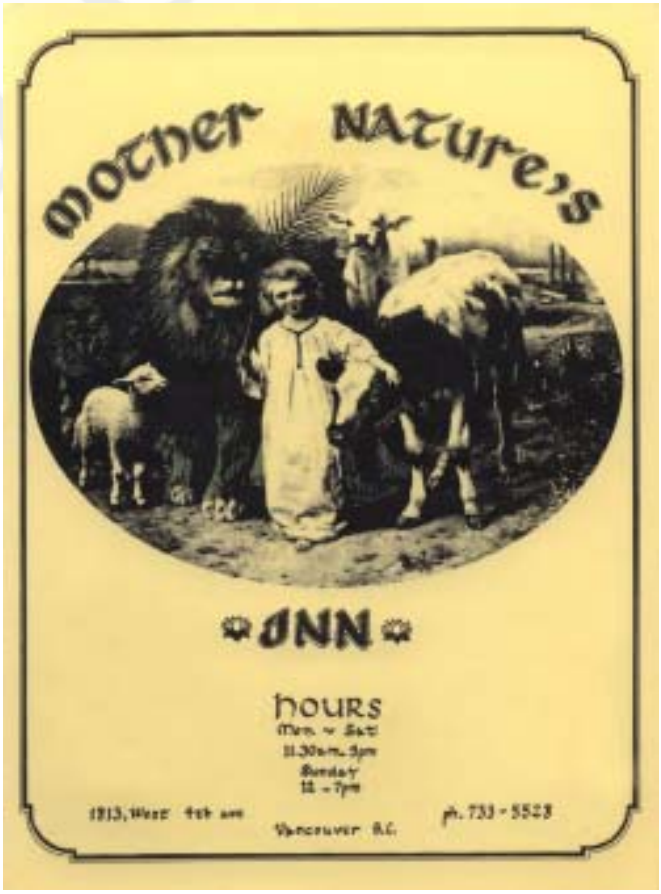
1972-73–Lifestream starts importing products from Muso Shokuhin (macrobiotic) in Japan. Blake Rankin and George Gearhart of Janus Foods in Washington state were good friends of Arran's. Their two companies did not compete. Canada had its own packaging regulations and Lifestream developed a complete line of Japanese products under the Lifestream brand for Canada.

1973 Feb. 1–The Stephens' 2nd child is born; the Master names her Gurdeep (Lamp of the Lord). Oct. Arran and Ratana, with both children, make another pilgrimage to India. One day "Yogi Bhajan, the founder of the 3HO Society, arrived at the ashram with a large retinue of Sikh followers. Yogi Ji was of gigantic stature, with a big black beard, flowing robes, jewelled rings, necklaces, and a commanding personality." The Stephens attend Kirpal Singh's 80th birthday on 6 Feb. 1974 then they return to Vancouver.

1974 Aug. 21–Sant Kirpal Singh returns to the Source, leaves his body (dies). Arran immediately flies to India, and arrives in time to see his Master's body cremated on a funeral pyre at Kirpal Bagh in Old Deli, a few miles from the Yamuna River. Bereft, he stays for about a month, searching for the Master's successor, then finally returns home–the succession enigma unresolved. He tries to return to being "a successful businessman responsible for more than a hundred employees, a devoted husband and father, etc." But for the next two years he is torn by the pangs of separation.

1974–Arran and Ratana buy 2 acres of land and a ranch house on Panorama Ridge, Surrey, BC, out in the country, about 15 miles southeast of Vancouver. They move there from their little house in Vancouver, work with others to build an ashram for those interested in Kirpal Singh's practice, and they live there for the next 5 years.

1974 Nov.–Lifestream is a member of the Natural Foods Distributors Assoc. (NFDA).



Desserts

Juices

Teas

1974–A 4-page menu (black on yellowish-tan paper) from Mother Nature's Inn this year still exists, along with a black-and-white photo of Lisa serving food in the restaurant.

1974 or 1975–Lifestream starts to lease space at 12411 Vulcan Way, Richmond, BC; it was converted from a pet food factory to completely vegetarian use. Here Lifestream operates its bakery and wholesale distribution; this continues until 1981.

1976 Jan.–Lifestream is still distributing products imported from Muso Shokuhin in Japan.

1977 July 23–A third child and daughter, Jyoti, is born in Vancouver.

1977 July–*The Lifestream Cookbook* is published by Lifestream (58 p.).

1978 June–Lifestream is now located in Richmond, BC, Canada V6V 1J7.

1978 Oct.–Arran and his family (wife and 3 children) return to India; he is still torn by the succession question. At first he tentatively but sincerely comes to believe that the "Desert Baba" in western India was Kirpal Singh's true successor; he shares his belief with other Kirpal Singh initiates. On Nov. 5 and 6 he realizes (to his immense relief and embarrassment) that Darshan Singh, Kirpal's eldest son, is his true successor and mystically one with his father. "The successor will bind you to your Master and not to himself."

1978 Dec.–When Arran returns from India he receives a letter (which he still has) which basically excommunicates him from the community of initiates and from the Ashram in Surrey, BC, which he and Ratana had helped to motivate, build, and finance. One of his partners at Lifestream could not handle the fact that Arran was no longer a follower of the "Desert Baba" any more, and soon that partner left to go see him in India. The advice he received in India was not helpful for his relationship with Arran, and soon he began a program of systematic non-cooperation with Arran in the business. The third partner remained fairly neutral and would not take sides. Yet it is soon clear that the Lifestream partnership has become unworkable. Yet as president, Arran has most of the responsibility. He was the first to arrive at work each day and the last to leave. And there were other inequities. The bank had only Arran as a secured creditor, yet the three partners were paid equally. Lifestream was always profitable, but the rapid growth meant tight cash flow. With no clear leadership at the top of the company, the Lifestream partnership begins to unravel.

1979 early–Arran and family move from their former community in Surrey, BC, in the "country back to the city, drawn to a gracious old house in a quiet neighborhood,

surrounded by a high-hedged secluded garden." They live and raise their family in this house for the next 23 years.

1979 April–Arran returns "alone to India for 3 weeks, to fortify and deepen my connection to the Divine working through Darshan, the poet-saint."

1979 Sept.–Fourth printing of *The Lifestream Cookbook;* it eventually sells over 100,000 copies. The company is now at 12411 Vulcan Way.

1979–Lifestream opens a big Lifestream Natural Foods retail store (#2) at 2582 West Broadway in Vancouver. On the 2nd floor above this new store, Woodlands Natural

Restaurant (vegetarian) opens. However the restaurant, owned by Ratana and Arran, is kept separate from Lifestream. The original Lifestream retail store at 1813-1817 West 4th Ave. continues to operate at its original location. A photo shows the Lifestream crew in about 1980.

1980–"Annual sales of Lifestream brand products reach $9 million, making the line one of Canada's leading natural food brands." Continued. Address: 724-26 W. 6th Ave., Vancouver 9, BC, Canada.

900. *SoyaScan Notes.*1967. Chronology of the work of Arran Stephens with natural foods, vegetarianism, and Lifestream Natural Foods Ltd. (Vancouver, then Richmond, BC, Canada). Part IV (1981–1989). 24 Sept. 1992. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Continued: 1981–Annual sales of Lifestream brand products jump to a record $12 million, and there are about 100 employees. All the retail sales and sales of Lifestream's distribution company are in Canada. However, the majority of Lifestream's Manna Bread, natural energy bars, and organic baked goods are in the USA. An estimated 25% of Lifestream's total sales were in the USA to wholesale distributors.

1981–Arran refuses to co-sign a bank loan for Lifestream, in an attempt to resolve partnership problems at Lifestream, by trying to force his disaffected partner to either buy his shares at a price for which Arran was willing to sell them, or to let Arran buy his shares at the same price. But the disaffected partner refuses to sell his shares to Arran, and he doesn't have the means to buy Arran's shares. The third partner wouldn't decide one way or the other. Parshan Sahota, an Indian man, owns 8% of the shares; a hardworking, loyal employee, he had $60,000 to invest, an amount calculated to equal 8% of Lifestream's shares. Parshan is now operating a successful Lifestream distribution operation out of Ontario, is behind Arran all the way (he is not an initiate), however even with his support, Arran does not have the requisite 51% ownership or backing to gain control of the company. Despite the company's success, the only alternative at this point is to sell to an outsider. Arran and Ratana do not want to sell the Lifestream baby, as they felt very much identified with it. This is a painful but valuable lesson for them. A buyer is found.

1981 July or Aug.–Lifestream is reluctantly sold to a holding company controlled by investment bankers Gordon Byrne and David Mindell. They hire Arran to remain as president, but renege on a promise to give him back 10% of the company, so he resigns as president by the end of August. He recalls that they effectively cheated him out of approximately $200,000 in the technicalities of the sale. Several months later, on the advice of a seasoned attorney, Hyma Altman, Arran decides to seek legal recourse for the recovery of the promised 10%; the defendant settles out of court. Gordon sells his shares to David Mindell and they hire an ex-executive of a large consumer goods firm to run the company. Under the new ownership, Lifestream has difficulties in the marketplace and labor problems at the stores, which they sell or close.

After Arran resigns from the company, he goes back to work at Woodlands Natural Foods (the family restaurant business), and abides by a 3-year non-compete agreement which restricts him from going into retail, wholesale, or manufacturing.

1981 Aug.–Nabob Foods (Canada's #2 brand of coffee) buys (from David Mindell) the much weakened Lifestream manufacturing operation at 9100 Van Horne Way, Richmond, BC. Nabob invests heavily in the Lifestream brand.

1981 Oct. 11–Arjan, the Stephens' fourth child and first son, is born–on Canada's "Remembrance Day." Arran recalls: "From early ages, our kids worked for hourly wages at our various enterprises, as they wanted spending money. We told them that if they wanted money, they needed to earn it, and learn valuable life skills along the way."

1981 to 1985–During these three years when his non-compete agreement was in effect, Arran helped Ratana at the Woodlands vegetarian restaurant. He recalls: "She was the heart and smarts behind the restaurant operation. I was the builder, the Don Quixote, tilting at Windmills. I did wait on tables, chop vegetables, clean toilets, sweep the parking lot." Using the initial large restaurant at 2582 West Broadway as a central bakery and commissary, they supply the old Mother Nature's Inn–still there in the back of the original Lifestream store (it is a tenant of the store), convert it to a Woodlands, and open and supply two additional Woodlands restaurants and stores in Vancouver (permitted in the non-compete agreement). Arran continues: "But it was very difficult to keep it all organized and profitable, and the world load was excessive. Ratana had the three daughters and now out newborn son to look after, plus she helped out with the main restaurant. She was the real hero that kept it together. The various Woodlands satellites were becoming increasingly difficult to manage properly and cash flow was in a dangerous position We decided to sell off the two outlets at a loss, and contracted back to the two original, profitable restaurants. But now we did have a nice bakery built in the back of Woodlands on Broadway, and it was out of this little bakery [in 1985] that we began Nature's Path Manna Bread."

1982 July–Lifestream is selling (and perhaps making) Vegi-Patties, which are meatless burgers made with textured soya flour and wheat gluten.

1985 Jan.–Arran Stephens founds Nature's Path, Ltd.–supported by Ratana and her restaurant–and launches the company's first product, Manna Bread, at Natural Products Expo West. As a limited corporation (an "Ltd."), Nature's Path takes in over 20 small investors, but this becomes

unwieldy, and the investors have very high expectations. So Arran and Ratana buy back the shares at cost plus interest.

1985 end–Nature's Path soon outgrows the Woodlands and moves to a much larger leased building on Simpson Road in Richmond, BC. Ratana continues to profitably manage Woodlands, while Arran works very hard to establish the Natures Path bakery. Arran would drive a truck each week, loaded with bakery products, all the way down to Portland, Oregon, making store deliveries. There were difficulties with the fresh bread, however, as most stores wanted guaranteed sales, and the stale bread returns were sometimes unbelievable. Yet Manna Bread was the staple seller. Arran then "shifted emphasis toward more shelf-stable organic bakery products, and introduced a line of sprouted, organic breakfast cereals under the Manna / Nature's Path banner."

1988 Feb.–Arran makes his tenth pilgrimage to India. "Weary of our ups and downs in business, Ratana urges me to ask Master [Sant Darshan Singh] for his advice to help set my feet firmly on the path to consistent profitability." Very humbly and graciously Darshan gives three basic principles: (1) "Keep to quality. Quality should never be sacrificed either for quantity or money. Be honest." (2) "We should expand our business to the extent that we can control it personally." No more. (3) "We should be progressive, do our best, and make the most of our business, but not be too ambitious. Be very cautious–expansion is very easy; retreating is very difficult. We should be contented with whatever the Master blesses us." Arran deeply appreciated the wisdom of this extemporaneous and free advice. He later recalled: "Sales began to take off. We then started effectively competing with Health Valley, Lifestream, Arrowhead Mills, Erewhon and others. It was a lot of fun, and the growth was explosive."

1988–"Multigrain, Multigrain 'n Raisin, and Millet Rice are the very first Nature's Path cereals. All are still for sale today." Continued. Address: 724-26 W. 6th Ave., Vancouver 9, BC, Canada.

901. *SoyaScan Notes.*1967. Chronology of the work of Arran Stephens with natural foods, vegetarianism, and Lifestream Natural Foods Ltd. (Vancouver, then Richmond, BC, Canada). Part V (1990 on). 24 Sept. 1992. Compiled by William Shurtleff of Soyfoods Center.

• ***Summary:*** 1989–The Lifestream store at Broadway is sold and becomes Kitsilano Natural Foods. But Arran and Ratana Stephens continue to own the Woodlands vegetarian restaurant upstairs at this location.

1990 Nov.–A nice article (with 3 portrait photos) about Arran and Ratana, Lifestream, Woodlands, and Nature's Path appears in *Shared Vision* magazine in Vancouver. Nature's Path is located at 7453 Progress Way, Delta, BC V4G 1E8. Ratana continues to run Woodlands vegetarian restaurant at 2582 West Broadway in Vancouver. Arran discusses the great importance of staying true to one's vision, spiritual practice, and principles.

1991–Arran now owns a company named Manna Milling, which is a very big purveyor of natural cereals in Canada and the USA; their brand name is Nature's Path. Lifestream had an eastern branch in Toronto, named Lifestream East, which then became LifeSource, which is now run by Parshan Sahota (see above), who now owns a remnant of what used to be Landstrom.

1992–Ratana leaves Woodlands vegetarian restaurant to help Nature's Path full time as chief operating officer (COO).

1993–Nabob Foods is purchased by Kraft Foods / Phillip Morris.

1994–Kraft approaches Arran and offers to sell him Lifestream, since Nature's Path was seriously trouncing Lifestream in every market. Lifestream had shrunk dramatically and was losing near $2 million per year. Arran offered to pay Kraft the value of Lifestream's assets, but Kraft rejected this offer with the comment, "This company is worth three times what you are offering. Six months later the Kraft attorney called again, saying that they were prepared to accept Arran's offer. Arran replied, "My offer just dropped."

1995–Arran and Ratana finally purchase back the assets of Lifestream from Kraft–14 years after they were forced to sell it. Their objective was to restore the LifeStream (new spelling) brand and real estate, but not necessarily the manufacturing, as Nature's Path already had a state of the art cereal processing and baking facility at 7453 Progress Way, in nearby Delta, BC. So Nature's Path closed the old Lifestream facility (at 9100 Van Horne Way, Richmond, BC), consolidated its usable assets in their Delta plant, then leased out the building on Van Horne Way. It took nine months to reverse Lifestream's losses.

1995–Nature's Path opens up a large plant in Blaine, Washington state (USA).

1995–Ratana and Arran sell Woodlands (formerly Mother Nature's Inn) to Ratana's sister, in order to be able to devote their full attention to Nature's Path. Arran: "Woodlands was highly profitable and provided a much-needed service to the community. Sales from the West Broadway restaurant were over $1,000,000 per year. It was common to experience line-ups at Woodlands for every lunch and dinner. It had a wonderful atmosphere, but with the great growth and potential of Nature's Path, we couldn't handle the restaurant as well as Nature's Path, which led to the decision to sell it."

1996-2002–Arran serves on the board of the Organic Trade Association (OTA).

2002–Arran and Ratana purchase and move to their current house, named Shalimar, on 2.2 acres of land near the University of British Columbia, overlooking the water, the rain forest, and a canyon. There they developed a reflecting

pond, a large and gorgeous organic garden (both foods and ornamentals) and a fully-equipped cabin for guests.

2004–Nature's Path is now North America's largest certified-organic cereal company.

2004 May. *Natural Foods Merchandiser* (p. 29), in an article titled "25 who championed a cleaner plate," one in a series of articles celebrating the magazine's 25th anniversary, honors Arran as a pioneer–and shows a nice color portrait photo. He has been in the natural foods industry for 37 years. At age 23, he owned Canada's first vegetarian restaurant, the Golden Lotus. One challenge was transforming himself from a recluse to a professional leader and entrepreneur. He would like his epitaph to read: "Nurturer of people, nature and spirit."

2006 Feb. 1–Nature's Path Baking Inc. opens in Mississauga, just east of Toronto, Ontario, Canada. Arjan Stephens (the son) is the overall manager of this leased 36,000 square foot organic toaster pastry plant. A very bright young man, also devoted to the spiritual path, he earned his MBA in 2005 from the Stuart School of Business, Chicago, Illinois. Before he could finish his law degree, Arran asked him to help with the family business. 2006 July–The great majority of Nature's Path production is from the facility at Blaine, Washington (USA), with this plant and the one in Delta, BC, operating 24 hours a day, 7 days a week (24/7). Arran adds: "Nature's Path currently owns and operates more than 400,000 square feet of buildings and leases the 36,000 square foot plant in Mississauga. We are now looking at a very interesting opportunity in the Midwest for a new plant and distribution center, that will significantly reduce miles traveled. For example, most of our production currently takes place in the Pacific Northwest, but half of our business is east of the Rockies. Much of our grain supply comes from east of the Rockies. By locating an additional plant in the Midwest, in the middle of the Grain Belt, we can more cost effectively produce and deliver for all markets east of the Rockies. The freight savings alone will be in the millions annually. With the soaring costs of the fossil fuel economy, we have to do everything to reduce energy consumption and move as quickly as possible to renewable, greener energy. Our goal as a company is to be zero waste by 2010 and climate neutral by 2020. Of course, this can only happen by creating significant carbon offsets. We already have been doing this to some extent by supporting sustainable, organic agriculture, but we have a long way to go to create the offsets for fuel and energy consumption."

"My diet for decades now has consisted of whole grains, vegetables. fruits, nuts, seeds, beans, and small quantities of organic dairy. I haven't eaten meat, fish, fowl or eggs or anything containing them since 1964, and at 62 am quite healthy and vigorous."

Note: This is the earliest document seen (Feb. 2010) concerning Arran Stephens, Lifestream Natural Foods, or Nature's Path Foods, Inc. (British Columbia, Canada). Address: 724-26 W. 6th Ave., Vancouver 9, BC, Canada.

902. U.S. Regional Soybean Laboratory. comp. 1968. The Uniform Soybean Tests, northern states, 1967. *RSLM (U.S. Regional Soybean Laboratory Mimeograph, Urbana, Illinois)* No. 233. Feb. 151 p.
• ***Summary:*** Near bottom of title page: "United States Department of Agriculture. Agricultural Research Service. Crops Research Division, cooperating with State Agricultural Experiment Stations."

Contents: Soybean investigations personnel (in the Soybean Investigations, Oilseed and Industrial Crops Research Branch–mentioned for the first time as part of the Crops Research Division, ARS). Uniform Test participants (43 names and addresses, incl. 2 in California, 1 in Iowa, 5 in Ontario, Canada, and 2 in Manitoba, Canada). Introduction. Methods. Uniform test locations. Uniform test 00. Preliminary test 00. Uniform test 0. Preliminary test 0. Uniform test I. Preliminary test I. Uniform test II. Preliminary test II. Uniform test III. Preliminary test III. Uniform test IV. Preliminary test IV. Identification of parent strains. Growing conditions. Weather maps.

A map, facing the table of contents, shows the locations of the Uniform Soybean Tests, Northern States, 1967.

New varieties released: Corsoy (July 1967). Verde (1967). Address: Urbana, Illinois.

903. Jogarathnam, T. 1968. Marketing soybeans in Ontario. M.S.A. thesis, Ontario Agricultural College, Guelph, ONT, Canada. June. *
Address: Canada.

904. Proceedings of the symposium on margarine and new edible oil products. And a review of a display and demonstration of margarines and new edible oil products. 1968. Ottawa, Ontario, Canada: Department of Industry, Food Products Branch. 90 p. Presented at the Annual Conference of the Canadian Institute of Food Technology, June 9-12, 1968, Banff, Alberta, Canada.
• ***Summary:*** Contents: Introduction, by Bernd Weinberg. Margarine manufacture and quality standards in Western Europe, by Dr. K.F. Gander (Technical Director, Margarine Union, Hamburg, Germany). Margarine manufacture and quality standards in Canada, by R.J. Sweeney (Manager, Quality Control, Kraft Foods Ltd., Montreal, Quebec, Canada). The technical application of vegetable oils in the more recent substitute dairy products, by I.C. Graham (Industrial Food Products Research Supervisor, Procter & Gamble Ltd., Hamilton, Ontario, Canada). Manufacture and quality of dairy substitutes, by H.D. Hamilton (Technical Director, Drew Chemical Corporation, Boonton, New Jersey). The nutritional significance of fats in our diet, by D.M. Hegsted (Department of Nutrition, Harvard School of

Public Health, Boston, Massachusetts). Address: Ottawa, Ontario, Canada.

905. Ontario Soya-Bean Growers' Marketing Board. 1968. The Canadian soybean industry "in summary" for review by: The Honourable H.A. Olson, Minister of Agriculture. Chatham, Ontario, Canada. 7 p. Aug. 19. 28 cm.
• ***Summary:*** Contents: Introduction. Production. Growers. Consumption. Prices. Factors in the U.S. (incl. P.L. 480 export program which assists U.S. producers in disposing of large volumes of soybean oil). Assistance (history of stabilization board price support, which began in 1958 at $2.10/bushel and was discontinued after 1964). Average price. Average yield. Conclusions. Six recommendations. Address: Chatham, Ontario, Canada.

906. *Soybean Digest.*1968. Certificates of meritorious service. Sept. p. 23.
• ***Summary:*** Contains a description and photo of each of the following men who have worked to help soybeans in America: (1) Dr. C.E. (Chuck) Caviness of the University of Arkansas. (2) Maynard Speece of Minneapolis, Minnesota. (3) Ken A. Standing of Blenhein, Ontario, Canada. (4) Kent Pellett of the American Soybean Association, Hudson, Iowa. Pellett has been a member of the ASA staff since 1942, as managing editor and editor of the *Soybean Digest.*

A photo, titled "Long-term service," also shows ASA president Harris Barnes recognizing two long-term retiring board members: Glen Myers (9 years) and David G. Wing (28 years).

907. *Soybean Digest.*1968. Canadian growers' problems. Sept. p. 82.
• ***Summary:*** A meeting "regarding critical problems facing Ontario's soybean growers" was held on 19 August 1968 in Ottawa according to the Ontario Soya-Bean Growers' Marketing Board. "The meeting involved K.A. Standing, secretary-manager of the Board, and grower officials with H.A. Olson, Canadian Minister of Agriculture.

"The Board officials noted that there had been little expansion of soy bean acreage in Canada for over 10 years. They said this was due to a combination of factors including ineffective research, increasing cost of production, inadequate price stability at reasonable profit levels, and the effects of inadequate import policies involving the whole oilseed and edible oil industry."

"The Ontario Growers' Board in July had asked the Agricultural Stabilization Board for a price support of $3/bu. The officials noted, 'with an expected average yield of not more than 28 bu/acre in 1968 and a price of not more than $2.50/bu, Ontario soybean growers will be fortunate to realize $5/acre net profit' at present costs of production."

908. Photograph of Dr. Sven Holmberg in Oct. 1968 in Fiskeby, Sweden, standing in a field of soybeans he had bred and raised. 1968.
• ***Summary:*** This digital image, made from a color slide, was sent to Soyfoods Center in Jan. 2010 by Dr. Harvey Voldeng, a plant breeder at Agriculture Canada in Ontario.

The photo was taken by Dr. Lorne Donovan (who was a corn and soybean breeder at the time) during a visit he made to Dr. Holmberg at Fiskeby, Norrköping. Dr. Voldeng says the field could be a field of Fiskeby V.

909. Stefansson, B.R. 1968. Registration of Altona soybeans. *Crop Science* 8(6):777. Nov/Dec.
• ***Summary:*** Registration No. 71. Altona soybeans originated as a selection from the cross Flambeau x 052-093 in a breeding program at the Univ. of Manitoba. Altona was licensed for sale in Canada in April 1966. Address: Assoc. Prof., Dep. of Plant Science, Univ. of Manitoba, Winnipeg, MAN, Canada.

910. Parker, Alfred J. 1968. Our cook book for a happy and healthy life. Vancouver, BC, Canada: Kabalarian Fraternal Organization. 233 p. Recipe index. Portrait. 22 cm.
• ***Summary:*** First copyrighted in 1967, this pseudo-vegetarian cookbook uses fish and shellfish in many recipes. Soy-related recipes include: Soya noodle & tuna casserole (with soya noodles, p. 103). Soya bean casserole (p. 123). Soya beans (cooking hints, including use of baking soda, p. 171). Soya loaf (with soya flakes, p. 189). Soya bean casserole (p. 196-97). Address: Kabalarian Fraternal Organization, 1160 West 10th Ave., Vancouver 9, B.C., Canada.

911. Ontario Soya-Bean Growers' Marketing Board. 1969. Ontario soybeans: Submission to Honourable H.A. Olson, Minister of Agriculture. Chatham, Ontario, Canada. 12 + 2 p. Feb. 28 cm.
• ***Summary:*** Ontario soybean growers are in desperate financial troubles. Canadian processors paid up to $0.19 per bushel more for imported soybeans than for domestic soybeans during the past year. The soybean growers are requesting a "deficiency payment" from the Canadian government. Address: Chatham, Ontario, Canada.

912. Bernard, R.L.; Creemens, C.R. comps. 1969. Evaluation of maturity Groups III and IV of the U.S.D.A. soybean collection. *RSLM (U.S. Regional Soybean Laboratory Mimeograph, Urbana, Illinois)* No. 238. 34 p. April. Not for publication.
• ***Summary:*** "A collection of introduced and domestic soybean strains obtained over the past sixty years is maintained by the U.S.D.A. for use by breeders, pathologists, and other research workers. Strains in maturity Groups 00 to IV are maintained by R.L. Bernard at the U.S.

Regional Soybean Laboratory, Urbana, Illinois, and those in Groups V to VIII by E.E. Hartwig at the Delta Branch Experiment Station, Stoneville, Mississippi.

"This report includes data on the 1,157 strains in maturity Groups III and IV in the Collection as of 1960, distributed as follows: Maturity Group III: 41 U.S. and Canadian varieties, 13 FC strains, and 523 PI strains. 577 Total. Maturity group IV: 48 U.S. and Canadian varieties, 18 FC strains, and 514 PI strains. Total: 580 Total. Grand total: 1,157. For each strain is given: Name. Foreign name or parentage. Origin. Year released. Maturity group. Flower color. Pubescence color. Pubescence type. Pod color. Seed coat luster. Seed coat color. Hilum color. Mottling. Mottling score. Other. Flowering date. Maturity date. Lodging score. Height (inches). Stem termination score. Branching score. Seed quality score. Shattering score. Seed weight (gm/100 seeds), yield (bu/acre). Seed composition (dry seed basis): Protein percentage, oil percentage. Protein composition: Methionine percentage. Oil composition: Palmitic acid, stearic acid, linoleic acid, linolenic acid, iodine number (calculated from GLC fatty acid composition on a crude basis). Disease reaction: PR = Phytophthora rot, Py = Pythium rot, R = resistant, S = susceptible.

Group III varieties: Harosoy 63, Shelby, Adams, Adelphia, A.K. (FC 30.761), A.K. (Harrow), A.K. (Kansas), Aoda, Bavender Special, Bethel, Boone, Charlin, Chestnut, Chief, Chusei, Clark, Clark 63, Cloud, Columbia, Cypress No. 1, Delmar, Dunfield, Ebony, Emperor, Fabulin, Ford, Fuki, Funk Delicious, Gibson, Granger, Green and Black, Guelph, Hahto (Michigan), Harbinsoy, Harman, Higan, Hokkaido & Clark 63, Hongkong, Hurrelbrink, Illington, Illini, Ilsoy, Imperial, Jefferson, Jogun, Kanrich, Kent, Kim, Kingston, Kingwa, Kura & Adams, Lincoln, Little Wonder, Macoupin, Manchu (L55-143), Manchu (Lafayette), Manchu 2204, Manchuria 13177, Manchuria 20173, Mandell, Mansoy, Midwest, Mingo, Morse, Norredo, Osaya, Patoka, Patterson, Peking, Pennsoy, Perry, Polysoy, Roe, Ross, Sanga, Sato-3, Scioto, Scott & Kent, Shelby, Shingto, Shiro, Sooty, Viking, Virginia, Wabash, Wayne, Willomi, Wilson, Wilson-5 [Wilson-Five], Wing Jet (Source: Ohio. Released by 1929), Wolverine.

Note the spelling "maturity Groups" and "... the Group III strains were grown in one block and Group IV in another." But twice in the middle of a sentence we find "more appropriate maturity groups,..." and "strains of the two maturity groups are listed together..."

Note: This is the earliest document seen (July 2000) that mentions the soybean variety Charlin.

Note from Dr. R.L. Bernard. 1999. July 15. "I was still resisting use of 'germplasm'–a strange word, hard to define–but later give in to the popular use by management and the press. This document shows the extension of the use of "maturity Groups" beyond the Uniform Test, as also does the 1949 *USDA Farmers' Bulletin* No. 1520. 'Maturity Group' was well-and long-established with the soybean germplasm when I came in 1954." Address: 1. Research Geneticist; 2. Agricultural Research Technician. Both: U.S. Regional Soybean Lab., Oilseed and Industrial Crops Research Branch, Crops Research Div., Agricultural Research Service, USDA.

913. *Buffalo Evening News (New York).*1969. Named president of Canadian unit. June 12.
• ***Summary:*** "Robert E. Rich Jr. has been named president of Rich Products of Canada Ltd. in Ft. Erie, Ontario. Mr. Rich has been president of the Canadian operation for the past four years and under his direction the Canadian facility has just completed its third major plant expansion since it was opened six years ago. He lives at 731 Lafayette Ave. The Canadian company is a subsidiary of the Rich Products Corp. in Buffalo."

A portrait photo shows Robert Rich, Jr.

914. Rollier, M.; Ferrif, -; Pierre, -. 1969. Le soja: Experimentation 1966-1968 (suite) [The soybean: Experimentation 1966-1968 (continued)]. *Informations Techniques CETIOM* No. 18. p. 27-40. 3rd trimester. [Fre]
• ***Summary:*** Contents: Variety studies in France (Maturity Group 00 to V). Group 00 (vegetative cycle 90-95 days): Portage, Flambeau. Group 0 (95-105 days): Merit, Grant, Capital, Comet, Mandarin-Ottawa, Traverse. Group I (105-115 days): Hudson, Chippewa 64. Group II (125-140 days): Harosoy 63, Hawkeye 63, Amsoy, Hark. Group III (150 days): Wayne. Gives details on each variety, including yield in quintals/hectare. Note: 1 quintal = 100 kg. The soybean variety Merit gave the highest yield (16.00), whereas Chippewa gave the lowest (10.60).

915. *Courier (Champaign-Urbana, Illinois).*1969. Hackleman is cited. Oct. 17. p. 23.
• ***Summary:*** J.C. Hackleman was presented the Outstanding Service Award by the Association of Official Seed Certifying Agencies at their recent meeting in St. Louis, Missouri.

"Hackleman, a founder of seed certifying agencies in 1919 in Chicago, helped the organization grow to a 43 state and 2 Canadian [provinces] association, now celebrating its 50th anniversary.

"Association President W.O. Scott, UI agronomist, termed Hackleman a 'giant' in the seed improvement in the U.S.

"As a charter member, Hackleman helped develop original seed certification standards to protect newly created improved crop varieties from losing identity and being contaminated by other seed stock in trading channels."

O.G. Bentley, Dean of the University of Illinois College of Agriculture, speaking to the Association of Official Seed Certifying Agencies in St. Louis, said "the declining number

of farmers and the public preoccupation with a variety of social and economic ill will make future funding of tax-supported agricultural research more difficult... "about half of all agricultural research in the U.S. is supported by state or federal taxes."

Bentley pointed out that whereas consumers in other parts of the world spent 40-90% of their income for food, the average U.S. family in 1968 spent only 17% (after income taxes) for food.

Bentley expressed concern over the "gradual erosion in federal support for agricultural research, with research costs increasing about 6 per cent a year and federal support increasing by four per cent."

916. Odell, A.D. 1969. Technological aspects of developing new foods. *Canadian Institute of Food Science and Technology Journal* 2(4):A69-71. Oct.
Address: Director, Special Programs, General Mills, Minneapolis.

917. Gorrill, A.D.L.; Nicholson, J.W.G. 1969. Growth, digestibility and nitrogen retention by calves fed milk replacers containing milk and soybean proteins supplemented with methionine. *Canadian J. of Animal Science* 49(3):315-21. Dec. [13 ref]
• ***Summary:*** "Milk replacers containing zero (all milk) or 70% of the total protein from a soybean protein concentrate..., with or without methionine supplementation, were fed to Holstein calves... It was concluded that the soybean protein concentrate could supply a major portion of the protein in milk replacers for rearing dairy calves." The soy protein was supplied by Promosoy, a soybean protein concentrate, supplied by Central Soya (Decatur, Illinois).
Address: Research Station, Canada Agriculture, Fredericton, New Brunswick.

918. Eagles, Blythe. 1969. Leonard Sylvanus Klinck 1877-1969. *Proceedings of the Royal Society of Canada* 7:80-83. Series IV.
• ***Summary:*** This is an obituary for Leonard S. Klinck, president emeritus of the University of British Columbia (UBC), who died on 27 March 1969 shortly after his 92nd birthday. An educational pioneer, he served for five years as the first dean of agriculture at UBC and for a quarter of a century as its president.

Klinck was born on 20 Jan. 1877 in Victoria Square, Ontario, Canada, of Pennsylvania-Dutch-Canadian ancestry. This gave him a love of the land, an integrity of purpose, deep convictions, and a devotion to education in its broadest sense." He attended high school in Richmond Hill and Model School in Newmarket, Ontario. After graduation, he was actively involved in farming and taught school for 3 years before entering the Ontario Agricultural College of the University of Toronto. "His friendship from age eleven with Professor Zavitz and the reading of a book, *Scientific Agriculture* by President Mills of O.A.C. and Dr. C.C. James, deputy minister of agriculture for Ontario, inspired him to continue his education." After receiving his Bachelor's degree in 1903, he pursued graduate studies under Prof. Willet M. Hayes at the University of Minnesota, where he gained experience in plant breeding. At Iowa State College, he continued his studies in plant breeding under Prof. Perry Holden [M.S.A. degree 1905. His 1905 thesis was titled "The improvement of Iowa's corn crop through seed selection" (53 leaves, mounted photos, tables, 29 cm.). This thesis is at Iowa State Univ., Parks Library Archives (special collections)]. He "developed a comprehensive understanding of the spirit and philosophy of university extension and adult education and of the complementary and supplementary relationship between teaching and research.

"For nine years he served as professor and head of the Department of Cereal Husbandry at Macdonald College, McGill University–the first faculty appointee after the principal, Dr. James W. Robertson. He established an enviable reputation in directing cultural experiments with a survey of the agronomic possibilities of the region and in institution work in plant breeding. The development of *Rhizoma* alfalfa at U.B.C. began at Macdonald College with seed of the feral 'Siberian' alfalfas sent to him by Professor Hansen of the United States Bureau of Plant Industry. Dr V.C. Brink paid tribute to him as a pioneer geneticist and plant breeder who saw problems through the mind and the eye..."

"At Macdonald College Professor Klinck demonstrated his outstanding personal characteristics of universal courtesy and full understanding of leadership from within. His students have achieved outstanding prominence as teachers, research scientists, and administrators in Canada and the United States."

Dr. Klinck left Macdonald College in early 1914 when he was called to UBC to advise and collaborate with President Westbrook in planning the future university. "Dr. Klinck is survived by his widow [Elizabeth Barclay Abernethy; they were married on 27 June 1941], a son [Ronald Woodard Klinck], and one sister. He was predeceased by his first wife [Mary Alice McDougall; they were married on 20 July 1904] in 1939." A large portrait photo on the first page shows Prof. Klinck.

Note: Prof. Klinck developed the first soybean varieties in Quebec province. His parents were Thomas William Klinck and Sarah Catherine Woodard. For additional biographical information see:

(1) *American Men of Science: A Biographical Dictionary. 8th ed.* 1949. p. 1370. (2) *American Men and Women of Science: The Physical and Biological Sciences. 11th ed.* 1966. p. 2832.

(3) *The Canadian Who's Who.* 1967-69. Vol. XI, p. 590. (4) *Encyclopedia Canadiana.* 1972. Vol. 6, p. 13 ("He lectured in agronomy at Iowa State College, 1904-05, and then joined the staff of Macdonald College at Ste. Anne de Bellevue, Quebec. In 1914 he went to Vancouver as professor of agronomy and first dean of the Faculty of Agriculture in the newly established University of British Columbia, of which he was president, 1919-1944...").

(5) Macmillan Dictionary of Canadian Biography. 1978. (Toronto: Macmillan), p. 418. (6) University of British Columbia Main Library. President Klinck archival collection, with photos (1889-1969. 12 boxes, 1.4 meters of textual records, 2 audio reels; detailed record on Web). There is an annual "Klinck Lecture" at UBC. Also a published essay he wrote: "The young farmer and farming." 1934. Vancouver B.C.: B.C. Electric Railway Co. (7) Article he wrote in 1912: "The improvement of small grains at Macdonald College." *Agronomy Journal* Vol. 4, p. 126-29.

919. Soypro International Inc. 1969. A study of business prospects in the food industry of India. Cedar Falls, Iowa. iv + 87 p. Summarized as "Soybeans have good future in India" in Soybean Digest. 1969. Dec. p. 28. 28 cm. [20 ref]
• ***Summary:*** As part of The Canadian Food Advisory Team. For Malwa Economic Development Society (MEDS), Indore (which has expressed an interest in entering some aspect of the food industry in India). Sponsored by United Church of Canada.

Contents: Objectives and guidelines. Part I: Food resources and malnutrition. Food grains and pulses. Calories. Proteins: Legumes, oilseeds, milk, fish, poultry, meat. Fats and oils. Areas of food needs: Under-nourishment protein malnutrition. Summary and conclusions.

Part II: Food marketing. The non-market. Primary factors of the real market. Guidelines for product selection and production. Selling the product.

Part III: What is being done. Food ingredients: Grain processing, oilseeds for human nutrition. Consumer products: Protein foods for infants and children, foods for general consumption.

Part IV: Prospects for soybean production and soya food processing. Production: Yields, crop input, returns in relation to other crops. Market outlets and prices: Domestic markets for soy products, estimated prices. Soybean processing: Processing plants, storage, transportation, plant investment costs (new plants, converting existing plants to soybean processing). Low fiber meal and soy flour: Investment cost for production, marketing. Full-fat soy flour. Soy protein isolates. Specialty soy foods: Soy milk and related products, soy-based snack foods, cereals, dal. Conclusions.

Part V: Potential projects. Storage. Rice milling. Pulse milling. Soybean processing for soy flour, soy protein isolates. Sesame processing. Bread. Baby foods. High protein mixes. Synthetic milk or base for toned milk–related dairy products. Extruded high protein snacks/cereals. Low-cost quick-cooking dal. Food marketing and distribution.

List of references. Appendixes. Population of India. Recent production trends and current yields of key crops in India. Rough calculations of gross protein availability from local production in India.

This practical, business-oriented report focuses on low-cost high-protein foods designed to help private business meet India's problems of protein malnutrition, especially among infants and children. "Similarly, with fast rising interest in soybean production and utilization, considerable early attention had been given to this particular field..." In 1965-66, and in 1966-67 India had two devastating drought years. Prior to this, India has experienced four major droughts accompanied by famines since 1900: 1907-08, 1918-19 (the worst, with a 32.3% drop in agricultural output), 1920-21 (the second worst; 24.0% drop), and 1923-24 (16.6% drop).

Pulses, mostly in the form of dal ("the poor man's meat") have for many years been second only to food grains as a source of protein in Indian diets. Most pulses are dehulled by hand-powered stone mills at home before cooking, with a wastage of about 10%. However pulses are not keeping pace with the food grains in India's Green Revolution. Average yields are relatively low and response to fertilizer is low. Per capita consumption is static, or declining. India's main oilseeds in 1967-68 were (in descending order of output in million metric tons): groundnuts in the shell (5.83), cottonseed (2.00), rapeseed and mustard (1.48), sesame (0.42), and niger seed (0.10). Only groundnut, sesame, and niger also provide significant amounts of protein for humans. Yet after the oil is removed, most of the protein-rich oilseed cakes are used in livestock feeds or fertilizer, or exported; only about 10% of the available protein is used directly in human diets. There is now much interest in using more groundnut protein (as flour or isolate) in human foods; it has been used in toned milk. India's major source of animal protein is milk (both from water buffaloes and cows), with per capita daily consumption being 123 gm (4.4 oz).

Relatively little red meat is consumed in India; many states prohibit slaughter of cows. Goats and water buffaloes are the major sources of meat. According to CFTRI, 39% of Indians are deficient in proteins, and a high proportion of these are infants and children. Per capita availability of oils is 9.3 lb/year. 70 to 75% of all food produced stays on the farm and is consumed directly by the producers. Wheat is the main grain in north India, and rice in south India. About 25% of Indians are vegetarian by conviction, and "75% are now willing to eat animal products, with the latter percentage increasing every year. In practice, diets are still largely vegetarian because of the scarcity and cost of animal

products." Prestige is the single most important marketing factor in part because India is still a highly class-conscious society. The market is highly segmented. Products need to be targeted separately at the top 3 or 4 of the 5 class segments. The high class line should be introduced first. Cheap food or "food for the poor" has little chance of succeeding in commercial channels. Except as food for children, it is very hard to sell food on the basis of its nutritional or health-giving benefits. Sampling is the most effective promotional technique.

Several companies produce dried baby foods from milk and sell them in tin cans. In 1968 the biggest seller was Amul (3,500 to 3,800 tons), made by Kaira Dairy Coop. The pioneer commercial weaning food in India was Farex, made by Glaxo and sold in tins at Rs. 13 per kg. Kaira Dairy Coop launched Bal-Amul at Rs. 11 per kg and now produces 1,000 tons/year, expected to grow to 5,000 tons by 1974. Bal-Amul contains about 25% full-fat soy flour, 25% rice and wheat flour, 20% gram flour, 11% sugar, 10% nonfat dried milk, and 6-8% moisture. Processing equipment was donated by UNICEF. Soy flour and milk powder were donated by USAID. It will soon be offered in plastic bags at Rs. 7 to 8 per kg to reach a broader market. CSM contains 25% defatted or low-fat soy flour. Bal-Ahar contains 65% bulgur wheat, 25% groundnut flour, 10% Bengal gram [chickpea] flour plus vitamin/mineral pre-mix. Requiring 10-15 minutes cooking in water, it does not contain any soy. Use of CSM and Bal-Ahar is limited to food relief programs; they are not sold commercially.

MPF (Multi-Purpose Food, formulated under sponsorship of the Meals for Millions Foundation in the U.S.) consists of 75% groundnut flour, 25% Bengal gram flour, plus a vitamin/mineral pre-mix. Containing 45% protein, it sells for only Rs. 3.5/kg and is thus the cheapest protein source on the market and one of the best. However it has not met with any real success. 7 plants have been authorized to produce MPF in India. None are operating at capacity and most are not operating at all. Total output, currently 600 tons/year, is purchased largely by OXFAM for the Meals for Millions Foundation.

UNICEF is supplying an X-25 Wenger Cooker-extruder to CFTRI to experiment with extruded high-protein snacks. Note: The Wenger X-25 is a low-cost extrusion cooker / extruder. This is the earliest document seen (July 2006) that mentions the use of a low-cost extrusion cooker.

The population of India has grown from 314.8 million in 1941 to about 533.3 million in 1969. Each year the population is growing by about 13 million people. Roughly 80% lives in rural areas. In terms of gross protein availability, the main sources produced in India (in million metric tons of protein) are: rice 3.03, pulses 2.69, wheat 2.49, groundnuts 1.12, milk 1.05, and jowar (sorghum) 0.91. Soy is not listed. Address: Cedar Falls, Iowa.

920. Stuyvenberg, J.H. van. ed. 1969. Margarine: An economic, social and scientific history, 1869-1969. Liverpool, UK: Liverpool University Press; Toronto, Ontario, Canada: University of Toronto Press. xxiv + 342 p. Illust. Index. 25 cm. [215* ref]
• ***Summary:*** Contains seven excellent chapters on margarine by various authors, each with an historical perspective and cited separately. Also discusses the development of research on oils and fats, and their industry. Address: Prof. of Economic History, Univ. of Amsterdam.

921. Young, W.S. 1969. A new look at soybeans. *Ontario Department of Agriculture and Food, Publication* No. 173. 23 p. AGDEX 141/10. [3 ref]
• ***Summary:*** "Production from the nearly 300,000 acres of soybeans grown in Ontario and representing 95% of Canadian output leaves Canada in a severe deficit position with respect to that crop.

"Total production at about 9 million bushels represents only one third of the requirements of the three Canadian soybean processors (located in Toronto and Hamilton) to say nothing of the potential requirements for feeding raw to an expanding livestock population.

The top four soybean producing districts in Ontario province in 1968 were Kent (3,278,200 bu, yield 32.1 bu/acre), Essex (2,703,600 bu, yield 30.7), Lambton (1,919,200), and Elgin (722,500). The total province produced 9,027,000 bu. The Canada Dept. of Agriculture breeding programs in Manitoba, southwest Ontario, began in 1924.

"Soybeans produced by the 7,000 Ontario growers traditionally are marketed through one hundred local dealers... Once soybeans move off the farm they come under legislation of the Farm Products Marketing Act. Growers established a marketing scheme in 1949, and in turn, established the Ontario Soya-Bean Growers' Marketing Plan." Address: Crop Science Dep., Univ. of Guelph, ONT, Canada.

922. **Product Name:** Tofu.
**Manufacturer's Name:** Yet Sing Co.
**Manufacturer's Address:** 11 Baldwin St., Toronto, ONT, Canada. Phone: 416-977-3981.
**Date of Introduction:** 1969?
**New Product–Documentation:** Shurtleff & Aoyagi. 1978, Dec. *The Book of Tofu* (Ballantine pocketbook edition). "Appendix B: Tofu Shops and Soy Dairies in the West." p. 399. Phone: 863-0818.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number.

Talk with Martha Gifford Thompson. 1989. April 11. The Toronto Zen Center, was an affiliate group nearby in Canada. In Toronto, which has a large Asian population,

were at least three tofu shops: one very small family-run Korean shop, which had no name, was on Baldwin Street; it is no longer there. "The first room was stacked to the ceiling with soybeans. Down in the basement were many people slogging around making tofu. It was quite a scene, and nobody spoke any English." Talk with Jay Thompson. 1989. April 11 and June 9. He visited this company on 11 Baldwin St. many times to buy tofu for the Rochester Zen Center. The other tofu shop on Baldwin Street is no longer there.

Talk with Jon Cloud of Soy City Foods. 1989. May 3. Yet Sing is a tofu company at 11 Baldwin St. They may have been the first tofu company in Ontario. Started by the 1960's, they are still in business. Talk with a lady at Yet Sing. 1989. May 4. She barely speaks English, but thinks the company started about 20 years ago. The man who started the company has retired. They are still at 11 Baldwin Street, Toronto, ONT, M5T 1L1. Talk with Jhasun Koo, owner and founder of Pyung Hwa Food Co. 1989. May 4. He started making tofu in 1978 on Dundas St. In 1978 the only other tofu companies in Toronto were Yet Sing (probably the first) and Hwa Chang. Both were run by Chinese-Canadians and both are still in business.

923. Bezaire, Ernie. 1970. Soybean marketing board wakes up with rude shock: In Essex County. *Windsor Daily Star (Essex County, Ontario, Canada).* Jan. 17. p. 7.
• ***Summary:*** "Essex–For years the Ontario Soybean Growers Marketing Board went along with the idea that it didn't have to market anything." This past year the directors tried to negotiate with the three Ontario crushers who buy their soybeans, but were told "We'll pay you what we damn well please." If the Board wants to negotiate, it must find more customers than the three Ontario crushers, and it must learn how to negotiate. Milton Farough of Maidstone, chairman of the OSGMB, is actively learning as much as he can about the soybean market.

924. *Soybean Digest.*1970. Seed directory (Ad). Feb. p. 42-43.
• ***Summary:*** Soybean seedsmen and seed companies are listed alphabetically by state (and within each state alphabetically by city) in the following states: Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, North Carolina, North Dakota, Ohio, South Carolina, South Dakota, Tennessee, Virginia, Wisconsin, Canada (Ontario).

For each listing is given the amount and varieties of seed available, and whether certified, uncertified, or registered. Most of the entries are for individual farmers.

925. Fats and oils in Canada: Annual review 1969. 1970. Ottawa, Ontario, Canada: Edible Oils Section, Bakery, Cereals and Edible Oils Division, Agriculture, Fisheries and Food Products Branch, Dept. of Industry, Trade and Commerce. 118 p. 28 cm.
• ***Summary:*** This annual government publication is packed with statistics on the subject. Address: Ottawa 4, Ontario, Canada.

926. **Product Name:** Soy Flour with Gluten Flour for Bread and Rolls (Specially Processed for Diabetics).
**Manufacturer's Name:** MacDowell Brothers.
**Manufacturer's Address:** Brockville, ONT, Canada. Also Box 141, Ogdensburg, NY 13669.
**Date of Introduction:** 1970. March.
**New Product–Documentation:** *Soybean Digest Blue Book.* 1970. p. 116. Also listed in 1980.

927. Tape, Norman W. 1970. Rapeseed–Canada's soybean. *Canadian Food Industries* 41(5):45-49. May. [12 ref]
• ***Summary:*** "Oilseeds have been with us for centuries but the role their products have played in food manufacture has been insignificant until recent years. Oilseeds now supply a large portion of the world's edible fats and oils and protein supplement for animal feeding. In addition, the quantity of oilseed protein used by food processors has increased dramatically in the past decade...

"This increase in the use of oilseed protein in human foods is significant since it heralds the new area of 'food tailoring', where pseudo-animal products will be derived from plant sources. We see many products of this type in our supermarkets today. More foods will be fabricated from the basic 'building blocks' (i.e. protein, carbohydrate, and oils or fats) with the appropriate natural or artificial flavors, colors and odors. The 'building blocks' will be purchased on a 'cost-plus-function' basis...

"This paper describes the current and future market for oilseed protein in food manufacture, the present use of soy protein, the growing Canadian rapeseed industry, and the possibility of using rapeseed protein in food manufacture.

"Soybean technology has set the pace and goals for other oilseeds... At present, 92% of the soybean oil in the U.S. is used for edible purposes, primarily shortening, margarine, and salad oils. Eighty-five per cent of soybean meal is used in animal feeds; 10% is used for industrial purposes (e.g. paper coating, glue, fermentation substrates, etc.) and export; while 5% go into edible applications, such as meat extenders, meat analogues, dairy-type products, infant formulations and special dietary items...

"At the present time there are approximately 15,000,000 lbs. of isolated soy protein, 20,000,000 lbs. of soy protein concentrates and 200,000,000 lbs. of soy flour used for edible purposes in the U.S." Address: Food Research Inst., Canada Dep. of Agriculture, Ottawa, ONT, Canada.

928. *Toronto Daily Star (Canada).*1970. Sukiyaki made in five minutes: Japan (Ad). Aug. 19. p. 61. Women's Section
• ***Summary:*** In the lower right corner of this page is a recipe for Sukiyaki (with "2 cakes soybean curd, cut into 1-inch cubes").

"With the aid of the Dundas Union Store, one can buy all the authentic ingredients for an authentic sukiyaki for a very reasonable price..." Cook for no more than 4-5 minutes. Address: Toronto.

929. Ontario Soya-Bean Growers' Marketing Board. 1970. Proposal for establishment of an agency marketing plan for Ontario soybeans. Chatham, Ontario, Canada. 12 p.
• ***Summary:*** "The proposed establishment of an agency marketing plan for Ontario soybeans has been created as a result of serious grower resentment concerning low price levels received for their product. Failure on the part of the Ontario Soya-Bean Growers' Marketing Board to influence Ontario soybean processors through negotiations to pay more realistic prices for Ontario soybeans has aggravated growers' resentment...

"Unrestricted purchases of United States soybeans from unlimited supplies by Ontario processors has presented formidable odds to Ontario growers. From a production standpoint, Ontario growers have been able to compete with their most efficient counterparts in the U.S. producing an average yield of 28.9 bushels per acre during the past 5 years. The U.S. average for the same period was 25.7. Growers, however, have found it most difficult to compete with the price of U.S. soybeans and that is the reason for the board's action in seeking a change in the soybean plan.

"The intent is price improvement to growers by means of a single purchase and sales agency controlled by growers selling to whatever domestic or overseas market will pay the highest price." Address: Chatham, Ontario, Canada.

930. Probst, A.H. 1970. Fifty years of soybean variety improvement. *Soybean Digest.* Aug. p. 66-70.
• ***Summary:*** Contents: Introduction. The trend to yellow seed. Common objectives of soybean breeders: High yield, high oil content, high protein content, disease resistance, improved seed quality, maturity to fit rotations, shattering resistance, desirable plant height, lodging resistance, high podding from soil level. Threat of root rot. Reasons for yields of 100 bushels/acre.

Before 1920, the soybean was used mostly as a forage crop. It was "used extensively for hay, and to a lesser extent for soilage, silage, green manure, lambing- or hogging-off when grown as a companion crop with corn, and for direct feeding of the beans." In 1924 the first official U.S. production statistics showed that of the 1,782,000 acres produced, only 448,000, or 25%, were harvested for beans. "It was not until 1941 that 5,881,000 acres harvested for beans surpassed the 5,510,000 acres grown for all other purposes.

"The development of the soybean processing industry was nudged into being mainly by World War I when there was such a shortage of fats and oils in the U.S. that it was necessary to import Manchurian soybean oil."

"Well over 10,000 introductions have been brought into the U.S. since 1898. Approximately 4,775 introductions were brought in by W.J. Morse and P.H. Dorsett who spent 2½ years during 1929-1931 on an agricultural exploration trip in Japan, Korea, and Manchuria.

"The germplasm collection today numbers about 3,200 types plus nearly 300 named varieties."

"Through 1940 most varieties were released either as direct introductions, rogued introductions, or selections from introductions. Some selections from introductions may have been of hybrid origin. A few varieties developed from introductions which played an important role in the rapid expansion of acreage planted for processing 20-50 years ago included Dunfield, Illini, Manchu, Richland, Mukden, Mandarin, Habaro, Boone, Patoka, and Roanoke. All vegetable-type varieties up to 1956 were introductions.

"Only a few varieties released through 1940 are known to have come from artificial hybridization-breeding programs. These include Mamloxi, Mamotan, Mamredo, Ogden, Volstate, Tennessee Non-pop, Oloxi, Pee Dee, and Yelredo.

"Of this group, only Ogden, with numerous good qualities sought in varieties today, was grown extensively for a long period. The popularity of Ogden was such that nearly 30 years after its release in 1941 some of it was still being grown commercially.

"Following 1940, and especially after 1950 there have been few varieties released which have come directly from introductions."

"The establishment of the U.S. Regional Soybean Industrial Products Laboratory (now the U.S. Regional Soybean Laboratory) in 1936 at Urbana, Illinois, brought about a tremendous increase in soybean breeding. Variety development immediately lost its provincialism and went "big league" to have an immediate impact nationally and eventually internationally."

"A recent listing of the leading soybean varieties for the U.S. and Canada included 39, plus seven special-use varieties, five of which were vegetable types and two were high-protein types.

"Since 1943 over 80 varieties have been or are in the process of registration by the American Society of Agronomy or, more recently, the Crop Science Society of America.

"The major part of soybean-variety development in the past has been accomplished by public agencies, particularly the agricultural experiment stations and the U.S. Department of Agriculture. At least one private company

has been breeding soybeans for many years; a few for shorter periods.

"During the past few years, a few number of private companies have entered the field of soybean breeding."

Two main factors have led to yields of 100 bushels/acre or more: Better soybean varieties combined with improved cultural practices.

Small portrait photos show: George Kimmons (Ozark, Missouri; the first person to get 100 bu/acre yields, in 1968 with 109.6 bu/acre). W.J. Morse. M.D. Weiss. H.W. Johnson. R.W. Howell. B.E. Caldwell. J.L. Cartter. R.L. Bernard. R.L. Cooper. E.E. Hartwig. The work of each man in soybean variety development is discussed briefly on p. 70. Address: USDA Research Economist, and Prof. of Agronomy, Purdue Univ. [Indiana].

931. *Soybean Digest.*1970. ASA officers 1920-1970. Aug. p. 38-39.

• ***Summary:*** 1920–pres., Taylor Fouts, Camden, Indiana; secy., W.A. Ostrander, Lafayette, Indiana. 1920-21–pres., W.E. Riegel, Tolono, Illinois; secy., W.A. Ostrander, Lafayette, Indiana. 1921-22–pres., C.E. Carter, Columbia, Missouri; secy., W.A. Ostrander, Lafayette, Indiana. 1922-23–pres., G.M. Bridges, Madison, Wisconsin; secy., W.A. Ostrander, Lafayette, Indiana. 1923-24–pres., W.J. Morse, Washington, D.C.; vice presidents, E.C. Johnson, Stryker, Ohio, and J.L. Robinson, Ames, Iowa; secy., C.L. Meharry, Attica, Indiana. 1924-25–pres., W.J. Morse, Washington, D.C.; vice presidents, E.C. Johnson, Stryker, Ohio, and J.L. Robinson, Ames, Iowa; secy., C.L. Meharry, Attica, Indiana

1925-26–pres., W.E. Ayres, Stoneville, Mississippi; vice pres., F.P. Latham, Belhaven, North Carolina; secy.-treas., C.L. Meharry, Attica, Indiana. 1926-27–pres., F. P. Latham, Belhaven, North Carolina; vice pres., Taylor Fouts, Camden, Indiana; secy.-treas., W.E. Ayres, Stoneville, Mississippi. 1927-28–pres., Taylor Fouts, Camden, Indiana; vice pres., Walter Godchaux, New Orleans, Louisiana; secy.-treas., W.E. Ayres, Stoneville, Mississippi. 1928-29–pres., G.I. Christie, Guelph, Ontario, Canada; vice pres., C.K. McClelland, Fayetteville, Arkansas; secy.-treas., J.B. Edmondson, Clayton, Indiana. 1929-30–pres., W.L. Burlison, Urbana, Illinois; vice pres., F.S. Wilkins, Ames, Iowa; secy.-treas., Roy Chasteen, Crothersville, Indiana.

1930-31–pres., W.C. Ethridge, Columbia, Missouri; vice pres., E.A. Hollowell, Washington, D.C., secy.-treas., W.L. Burlison, Urbana, Illinois. 1931-32–pres., W.J. Morse, Washington, D.C.; vice pres., H.D. Hughes, Ames, Iowa; secy.-treas., J.B. Park, Columbus, Ohio. 1932-33–pres., John P. Gray, Baton Rouge, Louisiana; vice pres., C.K. McClelland, Fayetteville, Arkansas, secy.-treas., W.E. Ayres, Stoneville, Mississippi. 1933-34–pres., C.K. McClelland, Fayetteville, Arkansas, vice pres., unknown; secy.-treas., P.A. Webber, Madison, Tennessee. 1934-35–pres., K.E. Beeson, Lafayette, Indiana; vice pres., E.S. Dyas, Ames, Iowa; secy.-treas., P.A. Webber, Madison, Tennessee.

1935-36–pres., E.S. Dyas, Ames, Iowa; vice pres., J.C. Hackleman, Urbana, Illinois; secy.-treas., K.E. Beeson, Lafayette, Indiana. 1936-37–pres., J.C. Hackleman, Urbana, Illinois; vice pres., J.B. Park, Columbus, Ohio; secy.-treas., K.E. Beeson, Lafayette, Indiana. 1937-38–pres., J.B. Park, Columbus, Ohio; vice pres., Geo. Briggs, Madison, Wisconsin; secy.-treas., K.E. Beeson, Lafayette, Indiana. 1938-39–pres., G.G. McIlroy, Irwin, Ohio; vice pres., Jacob Hartz Sr., Stuttgart, Arkansas; secy.-treas., J.B. Edmondson, Clayton, Indiana. 1939-40–pres., G.G. McIlroy, Irwin, Ohio; vice pres., Jacob Hartz Sr., Stuttgart, Arkansas; secy.-treas., J.B. Edmondson, Clayton, Indiana.

1940-41–pres, G.G. McIlroy, Irwin, Ohio; vice pres., David G. Wing, Mechanicsburg, Ohio; secy.-treas., J.B. Edmondson, Clayton, Indiana; exec. secy., Geo. M. Strayer, Hudson, Iowa. 1941-42–pres., David G. Wing, Mechanicsburg, Ohio; vice pres., Joe Johnson, Champaign, Illinois; secy.-editor, Geo. M. Strayer, Hudson, Iowa; treas., J.B. Edmondson, Clayton, Indiana.

1942-43–pres., David G. Wing, Mechanicsburg, Ohio; vice pres., Joe Johnson, Champaign, Illinois; secy., Geo. M. Strayer, Hudson, Iowa; treas., J.B. Edmondson, Clayton, Indiana. 1943-44–Joe Johnson, Champaign, Illinois; vice pres., Howard Roach, Plainfield, Iowa; secy., Geo. M. Strayer, Hudson, Iowa; treas., J.B. Edmondson, Clayton, Indiana. 1944-45–pres., Howard Roach, Plainfield, Iowa; vice pres., Walter McLaughlin, Decatur, Illinois; secy., Jeanne Strayer, Hudson, Iowa; treas., J.B. Edmondson, Clayton, Indiana.

1945-46–all officers held over, no convention. 1946-47–pres., Walter W. McLaughlin, Decatur, Illinois; vice pres., J.B. Edmondson, Clayton, Indiana; secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1947-48–pres., Ersel Walley, Fort Wayne, Indiana; vice pres., W.G. Weigle, Van Wert, Ohio; secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1948-49–pres., Ersel Walley, Fort Wayne, Indiana; vice pres., John Evans, Montevideo, Minnesota; secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1949-50–pres., John W. Evans, Montevideo, Minnesota; vice pres., Jake Hartz Jr., Stuttgart, Arkansas; secy.-treas., Geo. M. Strayer, Hudson, Iowa.

1950-51–pres., John W. Evans, Montevideo, Minnesota; vice pres., Chester B. Biddle, Remington, Indiana; secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1951-52–pres., Chester B. Biddle, Remington, Indiana; vice pres., Jake Hartz Jr., Stuttgart, Arkansas; secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1952-53–pres., Chester B. Biddle, Remington, Indiana; vice pres., Jake Hartz Jr., Stuttgart, Arkansas; secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1953-54–pres., Jake Hartz Jr., Stuttgart, Arkansas; vice pres., Albert Dimond, Lovington, Illinois; secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1954-55–pres., Jake Hartz Jr., Stuttgart, Arkansas; vice pres., Albert Dimond, Lovington,

Illinois; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa.

1955-56–pres., Albert Dimond, Lovington, Illinois; vice pres., H.H. Huddleston, Lamont, Mississippi; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1956-57–pres., Albert Dimond, Lovington, Illinois; vice pres., John Sawyer, London, Ohio; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1957-58–pres., John Sawyer, London, Ohio; vice pres., C.G. Simcox, Assumption, Illinois; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1958-59–pres., John Sawyer, London, Ohio; vice pres., C.G. Simcox, Assumption, Illinois; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1959-60–pres., C.G. Simcox, Assumption, Illinois; vice pres., Chas. V. Simpson, Waterville, Minnesota; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa.

1960-61–pres., Chas. V. Simpson, Waterville, Minnesota; vice pres., Hubert Baker, Dalton, Illinois; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1961-62–pres., Chas. V. Simpson, Waterville, Minnesota; vice pres., Hays Sullivan, Burdette, Arkansas; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1962-63–pres., Chas V. Simpson, Waterville, Minnesota; vice pres., Hays Sullivan, Burdette, Arkansas; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1963-64–pres., Hays Sullivan, Burdette, Arkansas; vice pres., Lyle Trisler, Fairmont, Illinois; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1964-65–pres., Hays Sullivan, Burdette, Arkansas; vice pres., L.C. Meade, West Lafayette, Indiana; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa.

1965-66–pres., L.C. Meade, West Lafayette, Indiana; vice pres., Harris Barnes Jr., Clarksdale, Mississippi; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1966-67–pres., L.C. Meade, West Lafayette, Indiana; vice pres., Harris Barnes Jr., Clarksdale, Mississippi; exec. vice pres. and secy.-treas., Geo. M. Strayer, Hudson, Iowa. 1967-68–pres., Harris Barnes Jr., Clarksdale, Mississippi; vice pres., Seeley Lodwick, Wever, Iowa; secy., Leslie Tindal, Pinewood, South Carolina; treas., John Sawyer, London, Ohio; exec. vice pres., Chet Randolph, Hudson, Iowa. 1968-69–pres., Harris Barnes Jr., Clarksdale, Mississippi; vice pres., Seeley Lodwick, Wever, Iowa; secy., Leslie Tindal, Pinewood, South Carolina; treas., John Sawyer, London, Ohio; exec. vice pres., Chet Randolph, Hudson, Iowa. 1969-70–pres., Leslie Tindal, Pinewood, South Carolina; vice pres., Harold Kuehn, Du Quoin, Illinois; secy., W.B. Tilson, Plainview, Texas; treas., Howard Adler, Sharpsville, Indiana; exec. vice pres., Chet Randolph, Hudson, Iowa.

932. *Soybean Digest.*1970. ASA directors of 50 years. Aug. p. 39.

• ***Summary:*** These directors of the American Soybean Assoc. are listed alphabetically by last name: O.H. Acom, Wardell, Missouri 1948-64; Howard Adler, Sharpsville, Indiana 1969-70; W.E. Ayres, Stoneville, Mississippi 1925-29, 1932-33.

Hubert Baker, Dalton, Illinois 1959-61; G.H. Banks, Osceola, Arkansas 1937-38; K.E. Beeson, West Lafayette, Indiana 1934-38; Harris Barnes, Clarksdale, Mississippi 1961-69; Chester B. Biddle, Remington, Indiana 1949-1969; C.E. Bowen, Champaign, Illinois 1964-67; G.M. Briggs, Madison, Wisconsin 1922-23, 1937-38; J.B. Buchanan, Guelph, Ontario, Canada 1928-30; W.L. Burlison, Urbana, Illinois 1929-31; John Butterfield, Pana, Illinois 1956-62; Frank Byron, Waseca, Minnesota 1969-70.

C.E. Carter, Columbia, Missouri 1921-22; Roy Chasteen, Crothersville, Indiana 1929-30; G.I. Christie, Guelph, Ontario, Canada 1928-29; Harvey S. Clapp, Accotink, Virginia 1928-29; H.I. Cohn Sr., St. Louis, Missouri 1949-52; Joe Coleman, Clare, Iowa 1967-70; J.S. Cutler, Columbus, Ohio 1925-28.

E.J. Delwiche, Madison, Wisconsin 1925-28; Gilles DePutter, Appin, Ontario, Canada 1953-56; Albert Dimond, Lovington, Illinois 1951-59; W.R. Dodson, [Louisiana] 1932-33; John Dries, Saukville, Wisconsin 1940-51; E.S. Dyas, Ames, Iowa 1934-36.

J.B. Edmondson, Clayton, Indiana 1928-29, 1935-49; W.C. Ethridge, Columbia, Missouri 1929-31; John Evans, Montevideo, Minnesota 1949-69.

Milton Farough, Maidstone, Ontario, Canada 1968-70; Robert Ford, Merlin, Ontario, Canada 1966-68; Taylor Fouts, Camden, Indiana 1926-28; Eugene Funk, Bloomington, Illinois 1935-37.

Frank Garwood, Stonington, Illinois 1946-49; Harry Gatton Jr., Rumsey, Kentucky 1959-66; Ben Gildersleeve, Hudson, Illinois 1961-67; Thomas Gilmore, Sandersville, Georgia. 1935-37; Walter Godchaux, New Orleans, Louisiana. 1926-28, 1932-33; John P. Gray, Baton Rouge, Louisiana. 1932-35, 1938-40.

J.C. Hackleman, Urbana, Illinois 1935-37; Joe Hammer, Des Moines, Iowa 1960-62; Jacob W. Hartz Sr., Stuttgart, Arkansas 1938-49; Jake Hartz Jr., Stuttgart, Arkansas, 1949-69; Calvin Heilman, Kenton, Ohio 1949-52; E.A. Hollowell, Washington, DC. 1930-31; Frank Hoxie, Shenandoah, Iowa 1967-70; H.H. Huddleston, Lamont, Mississippi 1950-57; H.C. Hughes, Ames, Iowa 1931-32; Frank W. Hyatt, Wheatley, Ontario, Canada 1962-64.

E.C. Johnson, Stryker, Ohio 1923-25; Joe Johnson, Champaign, Illinois 1941-44; A.E. Jolly, Chatham, Ontario, Canada 1956-59.

Harold Keller, Dyersburg, Tennessee 1966-70; Roger Killingsworth, Jonesville, Louisiana. 1967-70; Harold Kuehn, Du Quoin, Illinois 1967-70.

F.P. Latham, Belhaven, North Carolina 1925-27; F.C. Laughinghouse, Pantego, North Carolina 1967-70; Frank W. Lewis, Ursa, Illinois 1962-64; Seeley Lodwick, Wever, Iowa 1964-69; Lester Longhurst, St. Thomas, Ontario, Canada 1964-66; J.G. Loo Jr., Baton Rouge, Louisiana. 1932-33; Harold Lumsden, Essex, Missouri 1954-57.

Martin Manning, Ladd, Illinois 1966-70; C.K. McClelland, Fayetteville, Arkansas 1928-29, 1932-35; G.G. McIlroy, Irwin, Ohio 1938-50; Walter McLaughlin, Decatur, Illinois 1943-47; L.C. Meade, West Lafayette, Indiana 1962-70; C.L. Meharry, Attica, Indiana 1923-26, 1930-35; Wm. Merschman, West Point, Iowa, 1969-70; Gerald Michaelson, Dawson, Minnesota 1969-70; Roy H. Monier, Carrollton, Missouri 1943-44; W.J. Morse, Washington DC. 1923-25, 1931-32; Glen Myers, Memphis, Missouri 1959-68.

Stuart D. Ormsby, Belleville, New York 1941-43; W.A. Ostrander, Lafayette, Indiana 1920-23.

J.B. Park, Columbus, Ohio 1930-32, 1936-38; R.H. Peck, River Canard, Ontario, Canada 1947-53; Don Pemberton, Cape Girardeau, Missouri 1969-70; Joe Pepper, Weston, Missouri 1968-70; W.R. Perkins, State College, Mississippi 1934-35; LeRoy Pike, Pontiac, Illinois 1948-56; Harry A. Plattner, Malta Bend, Missouri 1944-48; Wm. Prichard, Louisville, Georgia. 1969-70.

Howard Roach, Plainfield, Iowa 1941-67; J.L. Robinson, Ames, Iowa 1923-25; Everett Royer, Irwin, Ohio, 1968-70.

John Sand, Marcus, Iowa 1943-46; John Sawyer, London, Ohio 1952-69; Walter M. Scott Jr., Tallulah, Louisiana 1957-61; Richard Simcoke, Kennett, Missouri 1964-69; C.G. Simcox, Assumption, Illinois 1949-61; Chas. Simpson, Waterville, Minnesota 1957-69; Gilbert Smith, Taylorville, Illinois 1944-46; J.T. Smith, Tolono, Illinois 1925-26; Richard Smith, Tilbury, Ontario, Canada 1960-62; Robert Smith, Walnut Ridge, Arkansas 1969-70; L.F. Stoner, Holly Bluff, Mississippi 1946-48; Bert S. Strayer, Hudson, Iowa 1930-31; George Strayer, Hudson, Iowa 1937-67; Jeanne Strayer, Hudson, Iowa 1944-46; Hays Sullivan, Burdette, Arkansas 1960-70.

C.W. Tabaka, Ivesdale, Illinois 1926-28; Edward Tillman, Caruthersville, Missouri 1952-54; Leslie Tindal, Pinewood, South Carolina 1967-70; W.B. Tilson, Plainview, Texas 1967-70; Lyle Trisler, Fairmont, Illinois 1961-66.

W.W. Wallace, Woodslee, Ontario, Canada 1959-60; Ersel Walley, Fort Wayne, Indiana 1941-62; P.A. Webber, Madison, Tennessee 1933-35; W.G. Weigle, Van Wert, Ohio 1946-49; R.G. Wiggins, Ithaca, New York 1937-38; F.S. Wilkins, Ames, Iowa 1925-26, 1929-30; Harry D. Wilson, [Baton Rouge, Louisiana] 1932-33; David G. Wing, Mechanicsburg, Ohio 1940-68; John Wing, Mechanicsburg, Ohio 1969-70; LaVerne Workman, Chatham, Illinois 1967-70.

Note: These directors come from only 16 U.S. states plus Ontario, Canada. Illinois has the most directors with 21, followed by Iowa with 14 and Indiana with 10.

933. *Soybean Digest.*1970. ASA convention sites 1920-1969. Aug. p. 40.
• ***Summary:*** 1920–Camden, Indiana [Fouts Bros. Farm]. 1921–Urbana, Tolono, Illinois. 1922–Columbia, Missouri. 1923–Madison, Wisconsin. 1924–Ames, Iowa. 1925–Washington, DC. 1926–Stoneville, Clarksdale, Greenville, Mississippi. 1927–Belhaven, Washington, Elizabeth City, North Carolina. 1928–Camden, Lafayette, Indiana. 1929–Guelph, Ontario, Canada.

1930–Urbana, Illinois. 1931–Columbia, Missouri. 1932–Washington, DC. 1933–Baton Rouge, Houma, Louisiana. 1934–Little Rock, Stuttgart, Marianna, Arkansas. 1935–Evansville, Lafayette, Indiana. 1936–Ames, Cedar Rapids, Hudson, Iowa. 1937–Urbana, Illinois. 1938–Columbus, Wooster, Ohio. 1939–Madison, Wisconsin.

1940–Dearborn, Michigan. 1941–Ames, Des Moines, Iowa. 1942–Lafayette, Indiana. 1943–Cedar Rapids, Iowa. 1944–Urbana, Illinois. 1946–St. Louis, Missouri. 1947–Columbus, Ohio. 1948–Memphis, Tennessee. 1949–Minneapolis, Minnesota.

1950–Springfield, Illinois. 1951–Des Moines, Iowa. 1952–Lafayette, Indiana. 1953–St. Louis, Missouri. 1954–Memphis, Tennessee. 1955–Cincinnati, Ohio. 1956–Urbana, Illinois. 1957–Minneapolis, Minnesota. 1958–Des Moines, Iowa. 1959–St. Louis, Missouri.

1960–Memphis, Tennessee. 1961–Indianapolis, Indiana. 1962–Minneapolis, Minnesota. 1963–Columbus, Ohio. 1964–Kansas City, Missouri. 1965–Memphis, Tennessee. 1966–Des Moines, Iowa. 1967–Peoria, Illinois. 1968–New Orleans, Louisiana. 1969–Myrtle Beach, South Carolina. 1970–Golden Anniversary, Minneapolis, Minnesota.

934. Hughes, G. Bernard. 1970. Bristol blue glass. *Canadian Antiques Collector* 5(9):17-19. Oct.
• ***Summary:*** Bristol, England, was long known for its beautiful blue (from cobalt), semi-transparent flint glass. “Bristol-blue” (as was called) was in continuous production at Bristol from about 1763 to 1799, but little if any was made from about 1800 until 1820, during the Napoleonic wars which blocked supplies of Saxon smalt. In 1821, a lavish set was presented to George IV at his coronation; thereafter it came into vogue under the name of “king’s blue.”

“Label cruet sets, gilded with lettering and scrollwork, were advertised in 1764, soy and sauce bottles shortly afterwards. Cruet frames in Sheffield plate were fitted throughout with Bristol-blue oil and vinegar bottles and three casters, and soy frames with three to six gold-labeled

bottles. They continued in production until the 1830s, little variation being found..."

Photos show: (1) A collection of Bristol-blue glass on three shelves, ranging in tint from deep cobalt blue to smoky greyish-blue. "The pair of sauce bottles (top left) are cut with hollow diamond facets and are engraved "Soy" and Elder" (p. 17). (2) "Two sets of spirit decanters labelled [gin, brandy, and rum] and decorated in gold, with four 12-sided soy bottles with shoulder bands of diamonds cut in high relief." The soy bottles are less than half the height of the decanters, and much smaller in diameter (p. 18).

935. Sault, J.L.; Gale, J.B. 1970. A review of developments in simulated meats. *Quarterly Review of Agricultural Economics (Australia)* 23(4):209-221. Oct. [42 ref]
• ***Summary:*** Contents: Introduction. Nature of simulated meat products: Sources of raw material, processing methods. Production and marketing: The United States market (where virtually all production has been based on soya bean protein), the Japanese market, the Western European market, other countries (South Africa, Canada, Australia). Factors influencing competition with natural meats: Differences in properties, increases in incomes and changes in tastes, relative prices, promotion, government regulations. Summary and conclusions.

"The United States and Japan are the two main producers of simulated meats and account for most of world consumption... Virtually all of the United States' commercial production of simulated meats has been based on soya bean protein." At least 15 companies made simulated meat in 1969, but six of these produce most of the items marketed. A number of the manufacturers (such as General Mills) are very large and have invested large amounts of time and money in the process.

In Japan, production of western-style simulated meats is a very recent development. Consumption of such items is still very small, though it appears to be rising. "In 1968 domestic production plus imports of simulated meats totalled 37.7 million lb, and during the first six months of 1969 they amounted to 25.9 million lb." Most of these products are made in Japan by at least 19 firms. One feature of the Japanese industry has been the importance of wheat gluten as a protein source. In 1968 and the first half of 1969 some 36% of Japan's output was derived from wheat gluten; virtually all of the rest was based on soy protein.

Sales of simulated meat products in Western Europe have been considerably lower than those in the USA and Japan. The main developments have occurred in the Netherlands, West Germany, and Sweden. In the Netherlands, imports rose from 44,000 lb in 1967 to 1,166,000 lb in 1968, then fell the next year. In West Germany, simulated meats were first introduced to the trade and consumers in mid-1968.

"In South Africa one firm is manufacturing a simulated meat from soy protein by what appears to be a thermoplastic extrusion process. The product is being used as a meat extender rather than as a complete meat substitute. It is reported to be of a dry and wiry texture requiring a good deal of seasoning to make it palatable." Its price is higher than that of natural meat.

Note: This is the earliest document seen (Dec. 1997) that uses the term "thermoplastic extrusion" in connection with soy.

936. Kamm, L. 1970. Immunochemical quantitation of soybean protein in raw and cooked meat products. *J. of the Association of Official Analytical Chemists* 53(6):1248-52. Nov. [18 ref]
Address: Food Div., Food & Drug Lab., Dep. of National Health & Welfare, Ottawa, ONT, Canada.

937. Bernard, R.L.; Cremeens, C.R. 1970. Evaluation of maturity group 00 to IV named varieties of the U.S.D.A. soybean collection. *RSLM (U.S. Regional Soybean Laboratory Mimeograph, Urbana, Illinois)* No. 244. Dec. iii + 31 p. Not for publication. A revision of RSLM No. 205, 1960.
• ***Summary:*** Contents: Introduction: "There are 213 United States and Canadian named varieties (including two or more strains of some varieties) in the Group 00 to IV Soybean Germplasm Collection at Urbana [Illinois] as of December 1970." A table (p. i) shows the number of varieties in each of the six maturity groups; the greatest number (54) is in Group IV. Definitions of column headings follow on page ii-iii. Table 1 (p. 1-3): Checklist of U.S. and Canadian varieties, groups 00 to IV. Lists variety name (alphabetical), maturity group, and code. At the end is a description of the code sequence. Table 2 (p. 4-17): Origin of groups 00 to IV varieties. Lists variety name (alphabetical), prior designation, source, year named or released, developer or sponsor & year selected. An appendix to this table (p. 16-17) adds 21 more varieties. Table 3 (p. 18-19): Agronomic evaluation and seed composition data on 63 Group 0 and 00 soybean varieties grown at St. Paul, Minnesota, in 1963. For each variety is given: Maturity group, flowering date, maturity date, lodging score, height (inches), stem termination score, branching score, seed quality score, shattering score, weight of 100 seeds, yield (bu/acre), seed composition (protein, oil), protein composition (methionine, soybean trypsin inhibitors), oil composition (% linolenic acid, % linoleic acid), reaction to phytophthora rot disease (resistant or susceptible), mottling score.

Table 4 (p. 20-23): Agronomic evaluation and seed composition data on 22 Group I and I soybean varieties grown at Urbana, Illinois, in 1964. Table 5 (p. 24-29): Agronomic evaluation and seed composition data on 89 Group III and IV soybean varieties grown at Urbana,

Illinois, in 1965 and 1966. Table 6 (p. 30-31): Agronomic evaluation and seed composition data on 37 Group 00 to IV soybean varieties grown at Urbana, Illinois, in 1968.

Varieties evaluated: A-100, Acme, Adams, Adelphia, Agate, A.K. (FC 30.761), A.K. (Harrow), A.K. (Kansas), Aksarben, Altona, Amsoy, Amsoy 71, Anoka, Aoda, Bansei, Bansei (Ames), Bavender Special A, Bavender Special B, Bavender Special C, Beeson, Bethel, Black Eyebrow, Blackhawk, Bombay, Boone, Burwell, Calland, Capital, Carlin, Cayuga, Chestnut, Chief, Chippewa, Chippewa 64, Chusei, Clark, Clark 63, Clay, Cloud, Columbia, Comet, Corsoy, Crest, Custer, Cutler, Cypress No. 1, Delmar, Disoy, Dunfield, Dunn, Earlyana, Early White Eyebrow, Ebony, Elton, Emperor, Ennis I, Etum, Fabulin, Flambeau, Ford, Fuji, Funk Delicious, Funman, Giant Green, Gibson, Goku, Goldsoy, Granger, Grant, Green and Black, Guelph, Habaro, Hahto (Michigan), Hakote, Harbinsoy, Hardome, Hark, Harly, Harman, Harosoy, Harosoy 63, Hawkeye, Hawkeye 63, Henry, Hidatsa, Higan, Hokkaido, Hongkong, Hoosier, HP-963, Hurrelbrink, Illington, Illini, Ilsoy, Imperial, Jefferson, Jogun, Jogun (Ames), Kabott, Kagon, Kanrich, Kanro, Kanum, Kent, Kim, Kingston, Kingwa, Korean, Kura, Lincoln, Lindarin, Lindarin 63, Linman 533, Little Wonder, Macoupin, Madison, Magna, Manchu, Manchu (Lafayette), Manchu (Lafayette) B, Manchu (Madison), Manchu-Hudson, Manchu-Montreal, Manchu 3-Wisconsin, Manchu 606-Wisconsin, Manchu 2204, Manchukota, Manchuria, Manchuria 13177, Manchuria 20173, Mandarin, Mandarin-Ottawa, Mandarin 507, Mandell, Manitoba Brown, Mansoy, Medium Green, Mendota, Merit, Midwest, Miller 67, Mingo, Minsoy, Monroe, Morse, Morsoy, Mukden, Norchief, Norman, Norredo, Norsoy, OAC 211, Ogemaw, Ontario, Osaya, Ottawa, Pagoda, Pando, Patoka, Patterson, Peking, Pennsoy, Perry, Poland Yellow, Polysoy, Portage, Portugal, Pridesoy 57, Prize, Protana, Provar, Rampage, Renville, Richland, Roe, Ross, Sac, Sanga, Sato-3, Scioto, Scott, Seneca, Shelby, Shingto, Shiro, Sioux, Sooty, Sousei, Soysota, SRF300, Tastee, Toku, Tortoise Egg, Traverse, Verde, Viking, Virginia, Wabash, Waseda, Wayne, Wea, Willomi, Willomi B, Wilson, Wilson B, Wilson-5 [Wilson-Five], Wilson-5B, Wilson-6, Wing Jet, Wirth, Wisconsin Black, Wolverine, Yellow Marvel.

Note the capitalization in the text: “Strains in maturity Groups 00 to IV are maintained at the U.S. Regional Soybean Laboratory, Urbana, Illinois, and those in Groups V to VIII at the Delta Branch Experiment Station, Stoneville, Mississippi.”

Note 1. This is the earliest document seen (Nov. 2003) that contains the term “Soybean Germplasm Collection” (regardless of capitalization).

Note 2. This is the earliest document seen that mentions the soybean varieties Anoka (Aug. 2000), or Provar (Aug. 1999). Anoka (p. 32-33) was licensed or released in 1970. Developer: Minnesota AES and USRSL. Provar (p. 52-53) was licensed or released in 1969. Developer: Iowa AES and USRSL. Address: Urbana, Illinois.

938. Ellis, J.H. 1970. The Ministry of Agriculture in Manitoba. Winnipeg, Manitoba, Canada: Manitoba Dept. of Agriculture. See p. 236. Dec.
• ***Summary:*** Page 236 notes: “Forage Crop Improvement was first undertaken at M.A.C. [Manitoba Agricultural College] by Professor W. Southworth in 1916. This work consisted in selecting and breeding improved varieties of alfalfa, red clover, white and yellow sweet clover, grasses, corn, sudan grass, sainfoin, yellow trefoil, vetches, and soybeans... In breeding and selecting soybeans for earliness, a brown variety was produced and named Manitoba Brown, and several promising white soybean hybrids were produced and grown under number but were not named during Professor Southworth’s years of service.” Address: Prof. of Soils (Retired), Manitoba, Canada.

939. Gorrill, A.D.L. 1970. Physical and chemical characteristics of soybean and milk proteins before and after treatment with dilute alkali. *Canadian J. of Animal Science* 50(3):745-47. Dec. [6 ref]
• ***Summary:*** Promosoy, a soybean protein concentrate (SPC) supplied by Central Soya (Decatur, Indiana) readily dispersed in dilute alkali to yield a thick syrup-like mixture, which does not settle out in a liquid diet. “It had a smooth, bland taste, compared with a chalk-like taste when mixed with water. *In vitro* protein digestion by pepsin was also increased by this mild alkali treatment.” Address: Research Station, Canada Agriculture, Fredericton, New Brunswick.

940. Ontario Soya-Bean Growers’ Marketing Board. 1970. Notice of annual meeting of growers under the Ontario Soya-Bean Growers’ Marketing Plan. Chatham, Ontario, Canada. 4 p.
• ***Summary:*** The meeting was held on Thursday, Dec. 3, 1970 at the Holiday Inn, Great Hall, Keil Drive, Chatham. A financial statement for the year ending 31 Aug. 1970 shows assets of $116,000. Income for the year was $74,182, of which 93% came from a license fee of 1 cent per bushel. Expenses were $65,803. Address: Box 668, Chatham, Ontario, Canada.

941. Weber, C.R.; Fehr, W.R. 1970. Registration of Provar soybeans. *Crop Science* 10(6):728. Nov/Dec. [2 ref]
• ***Summary:*** Registration No. 78, for Provar. Developed at Iowa, it was increased and released in the summer of 1969 in Illinois, Iowa, Minnesota, and South Dakota. The Iowa Agricultural Experiment Station will be responsible for maintenance of breeder seed. Provar was evaluated in the Uniform Regional Tests beginning in 1963 by the Crops Research Division, and cooperating agricultural experiment stations in California, Illinois, Indiana, Iowa, Michigan,

Minnesota, Missouri, Nebraska, New Jersey, Ohio, South Dakota, Wisconsin, and Ontario (Canada). Other information on Provar has been published in Iowa Farm Science 23:3-5, 1969. Address: 1. Vice President and Director of Research, Peterson Seed, Company, Waterloo, Iowa, and Savage, Minnesota; 2. Associate Prof. of Agronomy, Iowa State Univ. and Collaborator, Crops Research Div., Agricultural Research Service, USDA.

942. Schwarz, Richard W. 1970. John Harvey Kellogg, M.D. Nashville, Tennessee: Southern Publishing Assoc. 256 p. Illust. Index. 22 cm. See p. 44, 120-23, 243. Also published in 1970 by Andrews Univ. Press (Berrien Springs, Michigan).

• ***Summary:*** This excellent biography of Dr. J.H. Kellogg was originally written as a 1964 PhD thesis at the University of Michigan. Although it contains no references or footnotes, and thus lacks the documentation and completeness of the dissertation, it is still (March 2009) the best biography of Dr. Kellogg. The author is a Seventh-day Adventist.

Contents: Preface. 1. The boy foreshadows the man. 2. A convert (the early health reform and vegetarian movements in America). 3. From teacher to doctor. 4. A man is what he eats. 5. Changing American habits. 6. Developing the Battle Creek Sanitarium. 7. Sanitarium ups and downs. 8. A torrent of words. 9. Variations on a boyhood dream. 10. The unwilling surgeon. 11. Products of an active mind. 12. All work, but little play. 13. What manner of man. 14. Father of forty-two children. 15. His brother's keeper. 16. The ties of fifty years are broken. 17. Food manufacturing and family quarrels. 18. New outlets for promoting an old program. 19. The last battles. 20. An epilogue.

Concerning meat substitutes (p. 121-23): "During the years in which he directed the experiments which led to the production of flaked cereals, Bromose, and Malted Nuts, Dr. Kellogg also attempted to develop a substitute for meat from plant sources. He traced his interest in such a product to conversations with Dr. Charles W. Dabney, noted agricultural chemist and former president of the University of Tennessee. When Dabney was serving as President Cleveland's Assistant Secretary of Agriculture [probably about 1893-1897], he had discussed with Kellogg the problem of supplying adequate protein for the world's rapidly expanding population. The men agreed that it was better economics to use grain for human food than to feed it to animals and then use them for food. The problem, as Dabney saw it, was to produce a grain product which would have all the nutritional value and taste appeal of meat.

"In 1896 Kellogg announced that he had perfected the ideal substitute for meat in Nuttose, a nut product which he could prepare to taste much like beef or chicken... The doctor's interest in new vegetarian meatlike protein foods continued active until shortly before his death. Among some of the more popular creations later developed in his laboratories were Protose, Battle Creek Steaks, and Battle Creek Skallops. Various combinations of nuts and wheat gluten composed the principal ingredients in the imitation meats...

"Kellogg's last major food discovery was an artificial milk made principally from soybeans. He was particularly enthusiastic over soy milk because it proved an excellent host for the *acidophilus* bacteria which the doctor believed needed to be implanted in the intestinal tract in order for it to function perfectly. Shortly after Kellogg had developed soy acidophilus milk, he chanced to read that Marie, smallest of the Dionne quintuplets, was suffering from bowel trouble. Immediately wiring the quints' physician, Dr. A. R. Dafoe, he announced he was sending him a supply of soy acidophilus milk, which he was certain would cure Marie's problem. About ten days later he received a letter from Dafoe which indicated that the soy acidophilus milk had indeed corrected the situation and asked that a continuous supply be sent to Callander, Ontario [Canada], for the five little girls."

In summarizing Dr. Kellogg's major accomplishments, the author notes (p. 243): "His introduction of peanut butter added another widely accepted item to the American diet, and it probably did more to provide a market for peanuts than did the efforts of any other person, with the possible exception of George Washington Carver. John Harvey's development of meatlike products from nuts and legumes combined with wheat gluten has not only helped to enrich the dietary of thousands of persons who for ethical, health, or religious reasons choose to be vegetarians, but such high-protein foods also hold possibilities for supplementing the diet in countries where the supply of meat is insufficient to provide enough protein for a rapidly expanding population."

Concerning Granola: In the early 1860s, Dr. James Caleb Jackson of Dansville, New York, developed Granula, America's first successful cold breakfast cereal, made solely from wheat. For 40 years, Dr. Jackson operated "Our Home on the Hillside," probably the most successful of the "water-cure" institutions that blossomed in the 1850s. "In an atmosphere approaching that of a European spa, Jackson provided hydropathic treatments and a special diet for as many as a thousand patients a year." In about the 1870s, at the Battle Creek Sanitarium, John Harvey Kellogg developed a similar product, which he named Granola. It differed from Jackson's Granula in that it consisted of several grains, and longer baking dextrinized the starch more thoroughly. "At first he apparently had no thought of selling it. He intended it solely for sanitarium patients. Gradually, however, as former patients and others interested in dietetic improvement sent to the sanitarium for Granola, a small commercial business developed, and Battle Creek thus took its first step toward becoming the 'Breakfast Food Capital of the World.'... Shortly after the production of

Granola for patients at the sanitarium began in 1877, Dr. Kellogg organized the Sanitarium Food Company as a subsidiary of the Battle Creek Sanitarium. Operated as an adjunct to the sanitarium bakery, for more than a decade it marketed a variety of oatmeal, graham, and fruit crackers and whole-grain cooked cereals–all originally devised to provide variety in the menu of sanitarium patients." All products were made from whole grains without artificial additives, and all underwent prolonged high-temperature baking designed to dextrinize their starch. "By 1889 the Sanitarium Foods had become popular enough to warrant the establishment of a separate factory; Granola alone sold at the rate of two tons a week." But when Dr. Kellogg wanted to expand the business, other sanitarium doctors refused to vote the funds. So Dr. Kellogg launched the private Sanitas Food Company, relying heavily on his younger brother, Will Keith, who had served as his personal accountant and business manager since 1880. John Harvey's new flaked cereals and vegetable meats became the property of the Sanitas Company. In mid-1906 Dr. Kellogg decided to change Sanitas' corporate name to the Kellogg Food Company. Then: "In the spring of 1921, to avoid further difficulties with Will Kellogg's manufacturing business [Battle Creek Toasted Corn Flake Company], Dr. Kellogg changed his concern's name to the Battle Creek Food Company."

Concerning flaked breakfast cereals: The first ones were developed from wheat jointly by Dr. J.H. Kellogg and his brother Will, in about 1894. Dr. Kellogg named their first successful wheat flakes product Granose Flakes, and on 31 May 1894 he applied for a U.S. patent on "Flaked cereal and process for preparing same." But in 1903 courts declared the doctor's patent invalid. Will Kellogg developed the product into a great commercial success, in part by adding sugar to the malt and corn combination from which he made the flakes. "The sugar greatly enhanced the cereal's taste appeal, and, as a result, the Corn Flakes business was booming by late 1905." Will convinced his brother, John Harvey, to relinquish Sanitas' rights to Corn Flakes, and in early 1906 Will established a separate Battle Creek Toasted Corn Flake Company with outside financing. John Harvey agreed not to take an active part in the new company's management. Six months later John Harvey decided to change Sanitas' corporate name to the Kellogg Food Company. The new company "began operating in July 1908, with Dr. Kellogg owning all but two of its fifteen thousand shares of stock. Not only did the new company absorb the old Sanitas Company, but it also leased the entire plant, machinery, goodwill, and business of the Battle Creek Sanitarium Food Company, thus bringing the manufacture and distribution of all the food products with which Dr. Kellogg was associated into one organization. By then John Harvey had decided that it would be a good thing to put out all company products under the trade name 'Kellogg's.'"

Will became very upset when Dr. Kellogg attached the family name to his new food company and products. Eventually a series of legal battles developed between the two brothers over this and other products. Will Keith Kellogg is discussed on pages 64, 118-20, 122, 144, 148, 192, 210-18, 224, 237-38.

On pages 193-208 are 16 pages of excellent black-and-white photos from the life of Dr. Kellogg, starting with a portrait of him and his wife in 1884.

Reprinted in 2006 by Review and Herald Publishing Association (Hagerstown, Maryland)–but with the new subtitle: "Pioneering health reformer." Adventist pioneer series. On the new cover, on a snipe in the upper right corner: "Father of the health food industry." Address: Andrews Univ., Berrien Springs, Michigan.

943. Carroll, K.K. 1971. Plasma cholesterol levels and liver cholesterol biosynthesis in rabbits fed commercial or semisynthetic diets with and without added fats and oils. *Atherosclerosis* 13(1):67-76. Feb. [27 ref]
Address: Dep. of Biochemistry, Univ. of Western Ontario, London, ONT, Canada.

944. Schroder, D.J.; Jackson, H. 1971. Preparation of soybean cheese using lactic starter organisms. III. Effects of mold ripening and increasing concentrations of skim milk solids. *J. of Food Science* 36(1):22-24. Jan/Feb. [11 ref]
• ***Summary:*** Fermented soybean cheeses were prepared from blends of skim milk powder and soybean milk in 4 different proportions. The amount of skim milk had little effect on the flavor of the finished cheese due to the dominant beany flavor from the soybeans. The original cheese was made with *Streptococcus thermophilus* as a starter, plus rennet added after 1 hour to assist in the coagulation of the milk. The cheeses were waxed and stored at 20ºC. The surface of the cheeses were inoculated with one of two molds: *Rhizopus oligosporus, or Penicillium camemberti*. A third trial consisted of making tempeh, then grinding the tempeh to make a milk, which was made into cheese by the normal method. Mold ripening resulted in desirable changes in texture, but these were offset by the development of bitter flavors. Address: Dep. of Food Science, Univ. of Alberta, Edmondton, Canada; Schroeder present address: Univ. of Minnesota, St. Paul.

945. *Implement & Tractor (Kansas City, Missouri).*1971. Soybean combining: Search for a better way. 86(6):40. March 7.
• ***Summary:*** The majestic combine "was criticized for its shortcomings by agricultural engineers from 14 states and Canada during the Univ. of Illinois soybean equipment conference, Feb. 4-5.

"'The combine is a child of the grain industry and serves that industry well. But soybeans demand more tender

loving care than the combine provides,' said William M. Bruce, chief of USDA's harvesting and Farm Processing Research branch, Beltsville, Maryland."

Agricultural engineers can help agronomists increase soybean yields. "'An additional 2 bushels of soybeans per acre due to better harvesting machinery will increase the current average yields of soybeans by 7.5 per cent. That's 85 million bushels, or about $250 million in terms of the 1971 crop,'" said Henry Parker, manager of Swift Edible Oil Co., Champaign, Illinois.

Agricultural engineers from eight major soybean producing states reported on research programs on combines at their land-grant universities: Illinois, Minnesota, Nebraska, Iowa, Missouri, Louisiana, and Michigan.

Note: The soybean was first harvested by combine in 1924, and this crop was, in fact, responsible for the introduction of the combine into the eastern United States.

946. American Soybean Association. 1971. Soybean Digest Blue Book Issue. Hudson, Iowa: American Soybean Assoc. 176 p. Index. Index of advertisers. 22 cm.
• ***Summary:*** Page 65 titled "Canadian production" contains three tables: (1) "Canadian estimated acreage, yield, production, farm price and value, crop years 1941-42 through 1970-71" (preliminary). (2) "Soybean oil and oilcake production, crop years 1943-44 through 1969-70. Includes bushels of soybeans crushed each year, which was 20,054,212 in 1968-69. (3) "Soybean production, utilization and value, Canada, 1936-1970" (9 columns). including imports and exports.

A table titled "Number of soybean processing plants: Estimated number of soybean oil mills and processing capacity in the United States, 1951-69" (p. 86) has the following columns: (1) Year beginning September. (2) Number of mills. Decreased from 193 (an all-time high) in 1951 to 121 in 1959, rose slightly to a peak of 135 in 1967, then decreased to 132 in 1969.

(3) Annual processing capacity, total (million bu): Increased from 310 in 1951 to 770 in 1969. (4) Annual processing capacity, utilized (million bu): Increased from 244 in 1951 to 737 in 1969. (5) Annual processing capacity, excess (million bu; difference between total and utilized): Increased from 66 in 1951 to a peak of 102 in 1953, then decreased to a low of 51 in 1958, rose to a peak of 174 in 1967, then fell to a record low of 33 in 1969.

(6) Ratio of utilized to total (percent): Ranged from 68% in 1952 to 96% in 1969.

(7) Average per mill, processing capacity (million bu): Increased from 1.6 in 1951 to a high of 5.8 in 1969.

(8) Average per mill, capacity utilized (million bu): Increased from 1.3 in 1951 to a high of 5.8 in 1969.

Note: The number of soybean oil mills in the USA from 1934 to 1948 is given in: Nakamura, Hiroshi; Hieronymus, Thomas A. 1965. "Structure of the soybean processing industry." *Illinois Agric. Exp. Station, Bulletin* No. 706. 84 p. Feb. See p. 4-5.

1934: 19 mills crushed 9 million bushels of soybeans.

1935: 49 mills crushed 25 million bushels of soybeans.

1942: 99 mills crushed had an estimated annual capacity to crush 106 million bushels of soybeans.

1944: 137 mills crushed had an estimated annual capacity to crush 173 million bushels of soybeans. \1945: 160 mills crushed had an estimated annual capacity to crush 189 million bushels of soybeans.

1948: 185 mills crushed had an estimated annual capacity to crush 200 million bushels of soybeans.

1950-51: 193 mills crushed 252 million bushels of soybeans. Address: Hudson, Iowa.

947. Moore, James W. 1971. Challenge ahead for soybeans. *Soybean News* 22(3):2-3. April.
• ***Summary:*** Excerpts from an address at the First National Soybean Planning Conference banquet, held 3 March 1971 at St. Louis, Missouri. The USA faces two major challenges. We are now using about 13% more soybeans than we grow. The immediate solution lies in planting more soybean acres. The long-term solution lies in getting better yields per acre. If we do not do this, Brazilian soybeans, or Canadian rapeseed, or African groundnuts, or Russian sunflower seeds will fill the gap. A photo shows James Moore. Address: President, National Soybean Processors Assoc.

948. *Foreign Agriculture.*1971. U.K. fats and oils imports up as Britain buys more soybean oil. July 19. p. 6-7.
• ***Summary:*** Imports of soybean oil as oil in 1970 reached the very high level of 60,500 tons. As usual, most of it came from Canada, with shipments totaling 25,900 tons. Second most important supplier of soybean oil in 1970 was Spain, with 16,400 tons. Direct soybean oil imports from the U.S. totaled 1,600 tons.

949. Buttery, B.R.; Buzzell, R.I. 1971. Properties and inheritance of urease isoenzymes in soybean seeds. *Canadian J. of Botany* 49(7):1101-05. July. [23 ref] Address: Canada Dep. of Agriculture, Research Station, Harrow, Ontario, Canada.

950. Perkins, Louise. 1971. Soybeans spearhead record U.S. farm sales to Japan. *Foreign Agriculture.* Aug. 30. p. 5-6.
• ***Summary:*** Since the mid-1960's Japan has been the top dollar market for U.S. agricultural exports. Australia has ranked first among U.S. competitors in agricultural trade, followed by Japan, since 1965. Canada, Mainland China, Mexico, and Thailand all contribute to Japan's soybean imports.

951. Gorrill, A.D.L.; Cameron, C.D.T.; Nicholson, J.W.G. 1971. Growth, digestibility and nitrogen retention by lambs fed liquid diets containing milk and soybean proteins. *Canadian J. of Animal Science* 51(3):663-67. Dec. [7 ref]
• ***Summary:*** "The soybean protein concentrate settled out of the liquid diet and therefore was not suitable for *ad libitum* feeding." Address: Research Station, Canada Agriculture, Fredericton, New Brunswick.

952. Godin, V.J.; Spensley, P.V. 1971. Oils and oilseeds: Soyabean. *TPI Crop and Product Digests* No. 1. p. 148-51. [19 ref]
• ***Summary:*** World soybean production has been increasing at the rate of 2.3% per annum from 1959 to 1968. World production has grown from an average of 19,724 tonnes in 1959-63 to an average of 38,405 tonnes in 1964-68. The three leading producing countries are USA (24,789,000 tonnes average 1964-68), China (10,978,000), and Brazil (559,000). The major importing countries are Japan (347,000 tonnes average 1964-1968), West Germany (262,000), Spain (136,000), Netherlands (97,000), Italy (93,000), Canada (83,000). Fluctuating prices and major influences affecting the basic trends are discussed. Address: TPI (Tropical Products Inst.), 56/62 Gray's Inn Rd., London WC1X 8LU, England.

953. Littlejohns, D.A.; Frayne, L.I.; Buzzell, R.I. 1971. Soybean production in Ontario. *Ontario Department of Agriculture and Food, Publication* No. 173. 15 p. AGDEX 141/10. [5 ref]
• ***Summary:*** Contents: Introduction. Growing soybeans: Selecting varieties, planting, seedbed preparation, row width, seeding rate, seed treatment, inoculation, fertility, weed control, soybean diseases, insects, harvesting, storage, production costs, marketing soybeans as a cash crop, feeding soybeans. Ontario Soybean Committee. Sources of additional information. Address: Ridgetown College of Agricultural Technology, Ridgetown, ONT, Canada.

954. Olsen, Ellen Marie. 1971. Effect of roasting, particle size and dietary protein level on the utilization of soybeans by pigs. PhD thesis, University of Guelph, Canada. Page 4695 in volume 32/08-B of Dissertation Abstracts International. *
Address: Univ. of Guelph, Canada.

955. Subcommittee on Feed Composition, Committee on Animal Nutrition, Agricultural Board, National Research Council, USA. Committee on Feed Composition, Research Branch, Dep. of Agriculture, Canada. 1971. Atlas of nutritional data on United States and Canadian feeds. Washington, DC: National Academy of Sciences. 772 p. See p. 621-34. Generated from Feed Composition DataBank. Address: Washington, DC.

956. Takashima, Shizuye 1971. A child in prison camp [1st ed]. Plattsburg, New York: Tundra Books. [74] p. Illust. so x 25 cm. *
• ***Summary:*** "The people in Japan, hearing how we have been treated by the Canadian Government, and that we are living in camps in the woods, send us barrels of soya sauce and miso paste."

Note 1. This book is written for elementary and junior high school students. A Japanese-Canadian girl recalls her experiences of the three years (1942-1945) that she and her family spent in a Canadian internment (evacuation and relocation) camp during World War II. It was the New Denver Relocation Center in British Columbia.

957. *SoyaScan Notes.*1972. Chronology of Janus Natural Foods, macrobiotic and natural foods distributor in Seattle, Washington. And of Granum. 17 March. 1992. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** 1972 Jan.–Janus Foods Inc. is established at 712 Seventh Ave. South in Seattle, Washington, by George Gearhart and Blake Rankin, formerly of Spiral Foods. Some background: In 1969, while a student at UCLA, Rankin came in contact with Erewhon, Los Angeles. After graduation from UCLA he and several friends set up a small health food store in Victoria, BC, Canada. Then he spent 3 months in Boston, Massachusetts, living in a Kushi study house and working in an Erewhon warehouse. Back in Seattle, he worked at Spiral Foods, a wholesale operation that was an offshoot of Chico-San. Spiral Foods owned the O-Soba Noodle Nook in Seattle. Shortly after that he and George Gearhart, the proprietor, closed Spiral Foods and in Jan. 1972 opened Janus Foods as a macrobiotic and natural foods wholesale and distribution company. Tim Hartman was third of the original incorporators; all three men managed the company. It was successful. From opening day, Janus sold miso and shoyu, imported from Japan; they were among the company's best-selling products. Janus never owned a natural foods retail store or restaurant, and never sold foods retail from their warehouse.

1972 Sept.–Rankin leaves Seattle on a trip to Japan via Hawaii. He leaves Hawaii for Japan in March 1973. Erewhon had given Janus permission to buy natural foods (bearing the Erewhon label) directly from Japan, so in the spring of 1973 Rankin traveled and worked with Muso and Mitoku to set up the first shipments to Janus in Seattle. Janus probably never paid any royalties or fees directly to Erewhon. He leaves Japan in Sept. 1973. Then he goes to Nepal and India on a spiritual search. In late 1973 he returns to Seattle and works for Janus.

1973–Two directories show that "Janus Foods Inc." is still located at 712 7th Ave. South, Seattle, Washington 98104. They now sell tamari and miso and distribute

products from Erewhon, Spiral Foods, Deaf Smith, Pure & Simple, Chico-San, and Arrowhead Mills.

1974 March 8–Janus (Gearhart, Rankin, and Hartman) hosts the meeting of the Natural Food Distributors in Seattle; 16 people representing 12 companies attended.

1974 July 19. By this date, Janus Natural Foods, Inc. is located at 1523 Airport Way South, Seattle, WA 98134. Tim Hartman is still a manager of the company and Rankin is present. The company now sells barley koji. The company now has a lovely sprout-like logo (designed by Frederick Walsh) and a new brand called "Verity," whose labels were also designed by Walsh. Soy sauce and misos were sold under the Verity label for a while starting before Sept. 1976.

1975–The three managers decide to rotate the presidency of Janus annually. Rankin became president and Hartman left the company before his turn came around. During 1974 and 1975 Rankin and Gearhart were working on miso production.

1976 Sept.–Rankin leaves Janus and returns to Japan where he works for Mitoku and studies calligraphy. A few days after his arrival in Japan he meets his future wife, Yoko. They later had two children, but separated in 1988 and eventually were divorced.

1977–Janus leaves its large warehouse on Airport Way.

1979 Month? (before summer) Janus goes out of business, under the management of George Gearhart.

1981–Rankin returns to Seattle and in January or February starts Granum (pronounced GRAH-num, not GRAY-num) as a distributor and importer for Mitoku macrobiotic food products from Japan. The Granum logo is designed by Frederick Walsh. As of 1985 Granum has a small retail store and a 10,000 square foot warehouse, both at 2901 N.E. Blakeley St., Seattle, Washington 98105. Expected 1985 gross is more than $500,000.

As of March 1992 Granum has more than doubled its business compared with 1985. Blake has remarried to Nancy and they have a 2-year-old son, Addison. George Gearhart now lives in the suburbs to the south of Seattle. He is a sales manager, but no longer works in the natural foods industry. Address: 712 7th Ave. South, Seattle, Washington 98104.

958. Bourne, M.C. 1972. Defatted soybean cotyledons as a high protein, stable, dry food. *Canadian Institute of Food Science and Technology Journal* 5(2):A39-A41. April. [3 ref. Eng]
Address: New York State Agric. Exp. Station, Cornell Univ., Geneva, NY 14456.

959. Jaeger, Martin. 1972. Marketing soybeans. *Ontario Ministry of Agriculture and Food, Factsheet* AGDEX 141/840. 3 p. April.
• ***Summary:*** "More than 300,000 acres of soybeans are grown in Ontario. Ontario farmers received about $24 million from sales of soybeans in 1970. Most soybeans are crushed to produce meal and oil. The meal is used in mixed feeds for swine and poultry, while the oil is used in human food, mainly as cooking oil or as a component of margarine or shortening. Ontario-grown soybeans account for less than half of the soybean crushings in Ontario. The rest are imported by boat from the U.S.A."

"Sixty pounds of soybeans provide about 47.5 pounds of soybean meal" and 10.5 pounds of oil. There are three soybean crushing firms in Ontario: Canada Vegetable Oil Products in Hamilton, Victory Soya Mills Ltd. in Toronto, and Maple Leaf Mills Ltd. in Toronto.

"Pricing soybeans: Ontario processors have an agreement with the Soya-Bean Marketing Board under which the processors are supposed to pay as much for Ontario soybeans as they do for American soybeans of equal quality.

"In practice this means that current U.S. soybean prices determine Ontario soybean prices while the navigation is open in the autumn, spring and summer. Ontario farmers deliver about 75% of their soybeans during this crop period."

Also discusses: Chicago futures prices. Forward pricing (pricing soybeans before the time of delivery, e.g., before planting). Direct marketing (from farm to processors). Competition from rapeseed.

Tables show: (1) Hypothetical example of soybean pricing in the autumn, spring and fall (per bushel). (2) Hypothetical example of soybean pricing in winter (Feb. 1). Address: Economics Branch, Ontario Ministry of Agriculture and Food.

960. Scott, Tobi. 1972. Gardening in the Cariboo. *Organic Gardening and Farming* 19(4):72-73. April.
• ***Summary:*** Homesteading in British Columbia, Canada, this family enjoyed the bounty of alfalfa, soy, mung and lentil sprouts, harvested in their kitchen every 3-4 days.

961. Farmilant, Eunice. 1972. Macrobiotic cooking. New York, NY: New American Library. 224 p. Foreword by Herman Aihara. May. Index. 18 cm. [31 ref]
• ***Summary:*** This pocketbook has a color (beige) photo on the cover of ears of wheat, one wooden spoon filled with soybeans and one filled with unpolished rice. It is "A basic introductory guide to cooking and eating the macrobiotic way." The author's interest in macrobiotics began in April 1968. Basic information on soyfoods (especially miso, tamari, and tofu) is given on pages 29, 33-38, 213-14. Soy-related recipes include: Wheat berries and black beans (i.e. black soybeans, p. 78). Sprouts (incl. soy sprouts, p. 82-83). Miso pickles (p. 124-25). Miso soup (p. 128-29). Cream of miso soup (p. 135). Black beans and wheat berries (p. 139).

There is an entire chapter on miso and tofu (p. 142-46) including: What makes miso so beneficial? Barley miso

(nutritional analysis). Miso-vegetable stew. Miso-rice. Miso stew with vegetables. Miso-vegetable spoon bread. Homemade tofu (curded with fresh lemon juice).

Pizza–Macrobiotic style (with miso, p. 149). Chop suey (with tofu and miso, p. 151-52). Miso bechamel sauce (p. 159). Miso gravy. Simple tahini and tamari sauces (p. 160). Tempura dip (with tamari). Simple miso spreads (p. 161). Miso-vegetable spread. Miso-watercress spread.

There is a directory of macrobiotic stores and restaurants in the U.S. (p. 191-203, subdivided alphabetically by state, and within each state alphabetically by city). The following states have the following number of stores and restaurants: Alaska 1, Arizona 4, Arkansas 1, California 32, Colorado 4, Connecticut 18, District of Columbia 3, Florida 14, Georgia 7, Hawaii 2, Illinois 7, Indiana 2, Iowa 5, Louisiana 4, Maine 14, Maryland 7, Massachusetts 51, Michigan 12, Minnesota 3, Mississippi 2, Missouri 3, Nevada 1, New Hampshire 20, New Jersey 9, New Mexico 3, New York 61, North Carolina 5, Ohio 14, Oklahoma 3, Oregon 2, Pennsylvania 8, Rhode Island 5, South Carolina 1, Texas 4, Utah 1, Vermont 26, Virginia 4, Washington 3, Wisconsin 2.

There is also a directory of stores, restaurants, and centers outside the U.S. (p. 204-07, subdivided by country). The following countries have the following number of stores, restaurants, or centers: Australia 1, Belgium 2, Brazil 2, Canada 15, Denmark 4, France 29, Germany 1, Holland (Netherlands) 2, India 1, Italy 1, Japan 3, Portugal 1, Puerto Rico 1, Spain 1, Sweden 1, Switzerland 2, United Kingdom: England 13, Scotland 1, Vietnam 2.

A list of wholesale distributors in the U.S. (p. 208-09) includes Shiloh Farms (Route 59, Sulfur Springs, Arkansas), Erewhon Trading Co. (8003 W. Beverly Blvd., Los Angeles, California 90048), Chico San Foods (1262 Humboldt Ave., Chico, California 95926), Erewhon Trading Co. (33 Farnsworth St., Boston, Massachusetts 02210), Deer Valley Farms (Guilford, New York 13780), Infinity Food Co. (171 Duane, New York, NY 10013), Mottel Foods (451 Washington, New York, NY 10013), Juniper Farms (Box 100, Sugar Loaf, NY 10981), Pioneer Specialty Foods (Fargo, North Dakota 58100), Merit Food Co. (Pill Hill Lane, Box 177, Bally, Pennsylvania 19503), Essene (58th & Grays Ave., Philadelphia, PA 19143).

962. Stevenson, K.R.; Alexander, J.C. 1972. Propionic acid for storage of high moisture soybeans. *Canadian J. of Plant Science* 52(3):291-94. May. [6 ref. Eng; fre]
Address: 1. Dep. of Crop Science; 2. Dep. of Nutrition. Both: Univ. of Guelph, Guelph, Ontario, Canada.

963. Kaldy, M.S. 1972. Protein yield of various crops as related to protein value. *Economic Botany* 26(2):142-44. June. [7 ref]

• ***Summary:*** The author compares the yield of usable protein per hectare of land for 6 crops taking into account the Biological Value (BV), Protein Score (PS; also called Chemical Score), and Net Protein Utilization (NPU). He then calculates the number of people whose protein needs could be met from one hectare of land using the three different values. For soybeans, the Biological Value is 29.2 (egg is 96 and potatoes are 73), the Protein Score is 70 (egg is 100 and potatoes are 70), and the NPU is 56 (egg is 100 and potatoes are 71). One acre planted to soybeans can supply the protein needs of more people under each of the 3 criteria than can be supplied by any of the other 5 crops, 29.2 people measuring protein quality by BV, 28.4 people measuring PS, and 22.7 people measuring NPU. Potatoes can supply the protein needs of the next largest number of people, followed by corn, beans, peas, and spring wheat.

Note: In March 1991, in answer to an enquiry from Soyfoods Center, Kaldy wrote: "In the paper I published in 1972 in *Economic Botany,* I was working with data representing average values for all Canada and not specifically for Alberta. My data reflects conditions in Ontario and to a lesser extent Nova Scotia, Prince Edward Island and Manitoba, but not in Alberta." But none of the names of these provinces are listed in the paper. Address: Research Station, Canada Dep. of Agriculture, Lethbridge, Alberta, Canada.

964. Schroder, D.J.; Jackson, H. 1972. Preparation and evaluation of soybean curd with reduced beany flavor. *J. of Food Science* 37(3):450-51. May/June. [10 ref]
• ***Summary:*** The tofu was coagulated with calcium sulfate. Address: Univ. of Alberta, Edmonton, Alberta, Canada.

965. Cumming, D.B.; Stanley, D.W.; deMan, J.M. 1972. Texture-structure relationships in texturized soy protein. II. Textural properties and ultrastructure of an extruded soybean product. *Canadian Institute of Food Science and Technology Journal* 5(3):124-28. July. [6 ref. Eng; fre]
Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT, Canada.

966. Labow, Rosalind S.; Layne, D.S. 1972. The formation of glucosides of isoflavones and of some other phenols by rabbit liver microsomal fractions. *Biochemical Journal* 128(3):491-97. July. [21 ref]
• ***Summary:*** The soybean isoflavones are not metabolized completely in the intestinal tract. Only an indeterminate amount is absorbed and then excreted as glycosides. Mentions biochanin A, daidzein, genistein, genistin, equol, glucoronic acid, monoglucuronides, monoglucosides, glycosides, and glucoside. Equol [7-hydroxy-3-(4' -hydroxyphenyl)-chroman] is an isoflavone derivative which was found to form a glucoside in a rabbit liver.

Note: This is the earliest document seen (Nov. 2009) that uses the word "equol" in connection with soybeans. Address: Dep. of Biochemistry, Univ. of Ottawa, Ottowa, Ontario K1N 6N5, Canada.

967. Stanley, D.W.; Cumming, D.B.; deMan, J.M. 1972. Texture-structure relationships in texturized soy protein. I. Textural properties and ultrastructure of rehydrated spun soy fibers. *Canadian Institute of Food Science and Technology Journal* 5(3):118-23. July. [18 ref. Eng; fre] Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT, Canada.

968. Gorrill, A.D.L.; Nicholson, J.W.G. 1972. Effects of neutralizing acid whey powder in milk replacers containing milk and soybean proteins on performance and abomosal and intestinal digestion in calves. *Canadian J. of Animal Science* 52(3):465-76. Sept. [15 ref]
• ***Summary:*** "We conclude that acid whey powder can be added to milk replacers at levels of about 23% and that adjusting the pH improves calf performance." Address: Research Station, Canada Agriculture, Fredericton, New Brunswick.

969. Criswell, J.G.; Hume, D.J. 1972. Variation in sensitivity to photoperiod among early maturing soybean strains. *Crop Science* 12(5):657-60. Sept/Oct. [16 ref]
• ***Summary:*** A key article on day neutrality. Two experiments were conducted to identify soybean varieties that were not sensitive to photoperiod. Early maturing varieties were found to be less sensitive to photoperiod than were later varieties. Therefore 111 soybean varieties from Maturity Group 00 (the earliest group) were grown at photoperiods of 12, 22, 23, and 24 hours in a controlled environment. In about 70% of these varieties "the length of time from planting to flowering was unaffected by photoperiod." Address: Crop Science Dep., Univ. of Guelph, Guelph, ONT, Canada.

970. Ontario. Ministry of Agriculture and Food. Economics Branch. 1972. The soybean industry in Ontario. Toronto, Ontario, Canada. ix + 93 p. Oct. 6. 28 cm. [10 ref]
• ***Summary:*** Contents: 1. Introduction: Background, U.S. production and utilization of soybeans, Canadian supply and utilization of soybeans, supply and disposition of protein meal in Canada, supply and disposition of edible oils in Canada.

2. Soybean production in Ontario: The importance of soybeans to Ontario agriculture, agricultural land use in southwestern Ontario, yields and farm value of principal cash grain crops, characteristics of farms producing soybeans, proportion of soybeans grown on farms in different size groups, soybean production on crop and livestock farms, size and income potential of farms producing soybeans, comparative costs and returns for soybeans and other crops.

3. Marketing soybeans in Ontario: Timing sales of Ontario soybeans, the country elevator system, handlings by county, comparison between Ontario and Indiana elevators, services performed by country elevators, terms of first sale, grading, purchase and transport of soybeans by processors, the Ontario Soya-Bean Marketing Board.

4. Processing soybeans in Ontario: Structure and technology of the industry, the market for Canadian oil, the market for Canadian meal, processing margins.

5. Price determination for Ontario soybeans: The general price level for soybeans, Chicago prices and Chatham Track prices, tariff change and price, on-boat prices and handling expense, summary of price adjustment, significance of the difference in relative prices in May and December, quality difference and price, the dealer margin.

6. Prospects and outlook for soybeans: U.S. and world prospects for soybeans, prospects for Ontario soybeans in present markets, competition from prairie rapeseed, alternative opportunities for Ontario soybeans, summary of price outlook.

Soybeans were introduced into Canada in 1893 at the Ontario Agricultural College. They began to be produced commercially in the early 1930s. "From 1941 to 1971, the area planted to soybeans in Ontario increased from 10,000 to 360,000 acres. Although soybeans are not a major contributor to total farm income in Ontario, they are a vital part of the cash grain economy of southwestern Ontario... Cash receipts from soybeans amounted to $16.7 million in 1969, $23.9 million in 1970, and $29.1 million in 1971. From 1969 to 1971, soybeans accounted for 29.2% of Ontario farm cash receipts from grain and 1.7% of all farm cash receipts.

"In Canada, soybean production and processing is concentrated in Ontario, where the industry was established during World War II. The original impetus came from war-time government policies designed to alleviate the shortage of edible vegetable oils that resulted from the War's disrupting world production and marketing." p. 4.

"Very few farms in Ontario produce only soybeans. The crop is usually combined with other cash grain enterprises or with livestock production. In 1966, there were 7,652 farms in Ontario with soybeans, 7,325 of which were in Elgin, Essex, Kent, Lambton, and Middlesex counties." p. 17.

"Only three edible oilseed processing plants are in operation in central Canada and all are in Ontario. One is in Hamilton and the other two are in Toronto... Canadian crushers continue to rely largely on imported soybeans."

"Vertical integration is important in the soybean crushing industry. Victory Soya Mills is owned by Procter and Gamble, a large refiner and user of vegetable oils. Canadian Vegetable Oil Processing Limited (CVOP) is

owned by Canada Packers, which refines and uses large quantities of oil. Canada Packers also uses soybean meal in preparing feed for sale through its owned and franchised feed dealers. Maple Leaf Mills is not integrated in terms of oil but is integrated with respect to both purchase of grains and manufacture and sale of animal feed. In view of its lack of integration into use of oil, Maple Leaf is in a good position to sell to Lever Brothers (Monarch Fine Foods) and to Swift Canadian.

"About 23 million bushels were crushed in Ontario in 1970-71. About half of this total was crushed by Victory. The other two firms divided the rest, with CVOP crushing a little more than Maple Leaf Mills" (p. 46). Address: Parliament Buildings, Toronto, Ontario, Canada.

971. Gorrill, A.D.L.; Nicholson, J.W.G. 1972. Alkali treatment of soybean protein concentrate in milk replacers: its effects on digestion, nitrogen retention, and growth of lambs. *Canadian J. of Animal Science* 52(4):665-70. Dec. [11 ref. Eng; fre]
• ***Summary:*** "Alkali treatment to disperse a soybean protein concentrate (SPC) was studied in two milk replacer experiments, in which the SPC supplied 50% of the total nitrogen." Six lambs were used. Growth to 10 weeks of age was similar. Address: Research Station, Canada Agriculture, Fredericton, New Brunswick.

972. Healy, G.M.; Macmorine, H.G. 1972. Replacement of serum by a soybean protein fraction in a basal tissue culture medium. *Progress in Immunobiological Standardization* 5:202-08. *
• ***Summary:*** Soybean protein-supplemented culture medium for polio virus, and for animal cell culture serum replacement. Address: Connaught Medical Research Lab., Univ. Toronto, Willowdale, Ontario, Canada.

973. Buzzell, R.I.; Donovan, L.S.; Giesbrecht, J.E. 1972. Growing soybeans. *Agriculture Canada, Publication* No. 1487. 19 p. Revised in 1979.
• ***Summary:*** Contents: Selecting a variety. Soybeans in a rotation. Soils and fertilizers. Preparing a seedbed: Fall tillage, spring tillage. Planting the crop: Seed treatment, inoculation, time, rate, and depth of seeding, row width, equipment. Controlling weeds: Cultural methods, chemical methods. Diseases: Seed decay, root and stem rots, leaf diseases, stem diseases. Insect pests. Harvesting. Storage. Producing seed soybeans. Marketing. Soybean research in the Canada Department of Agriculture. Acknowledgments. Address: 1. Research Station, Harrow, Ontario; 2. Ottawa Research Station, Central Experimental Farm, Ottawa, Ontario; 3. Research Station, Morden, Manitoba. All: Canada.

974. Horton, Lucy. 1972. Country commune cooking. New York, NY: Coward, McCann & Geoghegan. 232 + [8] p. Illust. by Judith St. Soleil. Index. 24 cm.
• ***Summary:*** A nostalgic memoir (for those who came of age at this time) of the world of young Americans in communes in the early 1970s, with many fine illustrations (see p. 27). The author, raised in New York City and educated at Bryn Mawr (Pennsylvania, with a major in classical archaeology), earned her traveling money by working as a live-in maid and cook for a rich "Park Avenue Lady" before embarking on the project that became this book. She hitch hiked to San Francisco, arriving in June 1971, then spent most of the next year visiting 43 communes in 12 states and Canada, and collecting recipes from each. There she found "a New Age of Food Consciousness." The main topic of conversation and common interest at these intentional communities was not God or sex, but food. This book, with her 150+ favorite recipes, features natural and organic foods (with lapses). Most of the recipes from California and the West Coast are vegetarian, but in New Mexico and eastward (especially New England) she was "surprised to find that vegetarianism was more the exception than the rule" (p. 81). Thus, Chapter 3 is titled "Meat (and one fish)." There are recipes for chicken, fish, deer, goat, beef, etc.

The Introduction notes (p. 15): "The *sine qua non* of commune cooking is tamari soy sauce, an unspeakably delicious fermented Japanese product available in natural foods stores which bears no resemblance to commercial soy sauce" * (Footnote: *"Kikkoman soy sauce, available in supermarkets, tastes like tamari but contains a preservative").

"1. Soups: The commune soups I sampled were typically of mixed vegetables with a tomato or miso (p. 159) base" (p. 27).

Tamari chickbits (p. 94, with chicken). Note about soy grits (p. 114). Sprouts (p. 135-36, many kinds including alfalfa, mung beans, soybeans, from Terra Firma, Oregon). Miso Almond Sauce (p. 158-59). Tamari gravy (p. 159). Soy-related recipes include: From Chapter 2, "Vegetarian main dishes"–Donna's soyburgers (p. 60-61, with whole soybeans, from California). Soy cheeseburgers (p. 61-62, with whole soybeans, from Moon Garden, Oregon). Suzy's soybean casserole (p. 63-64, from Breadloaf, New Mexico). Baked soybeans (p. 64-65, from Woolman Hill School, Massachusetts). Larry's tofu (soy cheese) (p. 65-68, homemade tofu from whole soybeans, from Om Shanti, Mendocino County, California). Breakfast cereal with roasted, salted soybeans (p. 163). Soy spread (p. 227, with soy flour, from The Motherlode, Oregon). Soy nuts (p. 229-30, baked, soaked soybeans with oil and salt). A photo on the rear cover shows the author, age 27, with long blonde hair, granny glasses, and blue denim overalls. Says Raymond A. Sokolov: "Lucy Horton has done more than

collect exotic recipes... she has assembled the crucial artifacts of a movement within The Movement."

Also discusses (see index): Adelle Davis, gluten (wheat), granola, ground nuts, macrobiotic diet, peanuts. Address: Derby, Vermont.

975. Houck, James P.; Ryan, M.E.; Subotnik, A. 1972. Soybeans and their products: Markets, models, and policy. Minneapolis, MN: University of Minnesota Press. vi + 284 p. Illust. Index. 24 cm.

• ***Summary:*** This classic work developed the standard framework for soybean sector analysis based on the joint product characteristics of soybean oil and meal. Contents: 1. Introduction. 2. World markets for food oils and high-protein meals. 3. Soybean markets in the United States. 4. Prices in the soybean sector. 5. Dynamic supply and demand model of the market for U.S. soybeans and their products. 6. Policy analysis with the dynamic model. 7. The economic and statistical framework for regional demand analysis. 8. Analysis of regional export demand for U.S. soybean oil: Mediterranean region, developed countries, Eastern Europe, developing countries, Latin America, Asia and Africa. 9. Analysis of regional export demand for U.S. soybean meal. 10. Analysis of regional export demand for U.S. soybeans: European community, other Western Europe, Canada, Japan, Israel and Taiwan. 11. Summary of regional analyses. Appendixes: Description and sources of data. Effective support prices and acreage supply functions: A general approach. Address: Univ. of Minnesota.

976. Quick, Graeme Ross. 1972. Historical perspective (Document part). In: G.R. Quick. 1972. Analysis of the Combine Header and Design for the Reduction of Gathering Loss in Soybeans. PhD thesis, Iowa State University, Ames, Iowa. 282 p. See p. 6-13. [83 ref]

• ***Summary:*** Patrick Bell in England (1826), and the McCormicks (1816-1850s; Cyrus Hall McCormick, lived 1809-1884 was an American inventor) and Hiram Moore (1838) in the U.S. developed and used cutting reapers. Shortly thereafter (in 1842) Australian inventors initiated the development of the "header-stripper" for standing cereal crops.

"The American horse-drawn machines probably evolved out of Cyrus Hall McCormick's 1831 reaper. They employed a cutterbar reciprocating through guards, conveying canvas and the bat reel. The first successful Australian machine, John Ridley's, used a stripping comb over which revolved a set of beaters to knock off" the heads, thresh them, and "deliver them to a box. There was no knife and the full straw was left standing."

"A 22-foot wide platform, side-fed harvester, with a steam engine replacing the horse team, was probably the first self-propelled machine. This was built by Wm. Berry in California in 1887 and was capable of harvesting 50 acres of wheat in a day. By 1893, Benjamin Holt had built and operated a 50-foot cut combine in California (Nyberg 1957). Daniel Best of San Leandro was credited with having built the first combine which replaced ground wheel drive power with an auxiliary steam engine drive (Caterpillar Tractor Co. 1954). The need for traction and flotation for these enormous combine harvesters led to the development of the first successful crawler track. Best and Holt later merged their interests to form the Caterpillar Tractor Company in 1925."

In Australia, by 1884, Hugh Victor McKay had added a winnower cleaning section to the basic Ridley-type, and in 1909 McKay built a 24-foot self-propelled stripper-harvester with an internal combustion engine side-mounted on the chassis. A market was growing for the stripper-harvesters made at McKay's "Sunshine" factory and, between 1895 and World War I, the company even exported 10,000 of its machines. This huge volume of exports caused North American harvester manufacturers to take note, and one result was that in 1901 Massey-Harris of Toronto, Ontario, Canada, began production of stripper-harvesters, followed in 1904 by International Harvester Co. of Chicago. Neither company sold these machines on their domestic markets (Baker 1961).

The Australian-born "stripper-harvester revolutionized the harvest operation by combining the gathering and threshing operations into one machine, but the [Ridley-type] stripper-beater, with its knifeless long tooth comb had severe limitations in wet or down and tangled crops. Grain loss was also high in sparse crops. The challenge to produce a machine in Australia which could cope with these conditions was partially met by some farmers in New South Wales. They worked with Massey-Harris representatives, and adopted the knife into their 'reaper-thresher' (Wheelhouse 1966). By 1910 the Canadian firm was manufacturing this long tooth combed machine specifically for export to Australia. It was another New South Welshman, Headlie S. Taylor, who finally overcame the problem of harvest lodging with the long toothed comb, after several years of development of his header-harvester. He installed augurs over the comb. This development attracted the interest of machinery manufacturer, H.V. McKay, who became impressed with the possibilities. McKay bought the manufacturing rights and then employed Taylor to work at the Sunshine factory in Victoria. In 1920, after a wet season in the Eastern Australian wheatbelt, the Sunshine header had won a wide reputation." Five reasons are given for the success of the twin-augur-header over the stripper-harvester.

"In 1924 Taylor produced the first Sun Auto-Header, a 12-foot self-propelled combine 'with the comb front forming the widest part of the machine.' The Tee-shaped combine configuration had arrived! This concept was patented and no other make of self-propelled combine with

full-width header was commercially released until the patent expired 17 years later. In 1938 a Sun Auto-Header harvested 3,300 bu of wheat in one day–a record that was unsurpassed during the next 33 years.

The pioneering research on combine design and manufacture in far-away Australia, conducted between the 1880s and 1924, was about to have a major and direct effect (via Canada!) on soybeans in America.

"Elmer J. Baker, 'the Reflector,' of *Farm Implement News* fame (later Implement and Tractor Magazine), was to be instrumental in directing the Massey-Harris Company to deliver a combine for soybean harvesting to a subscriber in Illinois. The subscriber was an International Harvester dealer who was disgruntled because his company refused to ship him a combine for sale to the Garwood Brothers–clients who were growing soybeans near Stonington, Illinois. There is no record of a combine having been tested in any crop in Illinois to that date, 1924. The Reflector referred his reader to Massey-Harris at Toronto, with full knowledge that they had no sales facilities in the U.S. What followed is history." Baker wrote about what happened in the 20 Nov. 1924 issue of *Farm Implement News* (which see).

"The success of the combine in the Illinois soybeans was followed by intensive breeding trials for the Garwood farms. The increase in plant size and yield led to a preference for the wide cylinder type combine. Several other harvesters were developed concomitantly for soybeans, but none could even approach the efficiency of the combine header (Sjogren 1939). No other method succeeded as well. The American self-propelled and pull-type combines of this era continued to use the draper-conveyor and side feeding.

"The 'straight-through' or 'scoop' design, with full-width threshing cylinder, made its appearance around 1935 and in 1938 Massey-Harris released the first self-propelled version, the 'Clipper' (Massey-Ferguson Inc., 1964). In 1939, coincident with the expiration of Taylor's patent, Massey-Harris offered the Model 21 combine of Tee-configuration" which now competed with McKay's Auto-Header made in Australia.

"Possibly the first U.S. combine to employ the auger was Curtis Baldwin's 'Gleaner.' Baldwin's earliest machines anticipated the 'Unisystem' approach to farm machinery design, whereby the same power system is used for a variety of field machines. Baldwin mounted his machine on a Fordson tractor in 1923. His concept of mounting the threshing-cylinder on the header still lingers in the modern 'down-front' Allis-Chalmers combines. All U.S. combines now utilize the auger conveyor for header cross-feeding."

"Combine sales did not increase significantly until World War II when wartime shortages of manpower and grain spotlighted the need for more efficient harvesting. Today an estimated 3 million combines are in use throughout the world.

"The present day version is more versatile than ever–the same machine can harvest a 5000-fold range of seed sizes–but it is also more complicated, containing an estimated 35,000 parts in one machine. It is more efficient, but it is more expensive than ever."

An illustration (p. 7) shows landmarks in the history of the harvester and header. Address: Iowa State Univ., Ames, Iowa.

977. Statistics Canada [Statistique Canada], Manufacturing and Primary Industries Div. 1973. Moulins à huile végétale 1971: Recensement annuel des manufactures [Vegetable oil mills 1971: Annual census of manufacturers]. Ottawa, ONT, Canada. 9 p. Jan. Catalogue 32-223 Annual. [Eng; Fre]
• ***Summary:*** A table (p. 1) shows crude oils used for processing. Soya oil was 477,250 lb in 1970 but only 60,248 lb. in 1971. Address: Ottawa, ONT, Canada.

978. Buttery, B.R.; Buzzell, R.I. 1973. Varietal difference in leaf flavonoids of soybeans. *Crop Science* 13(1):103-06. Jan/Feb. [21 ref]
• ***Summary:*** Flavonoids are found in most higher plants. They have been studied for their intrinsic interest as chemical compounds, for their value as "markers" in genetics and taxonomy, and for their function in the plant.

No comprehensive study of flavonoids in soybeans has yet been published, but various reports have described phenolic substances involved in seed color. Address: Research Station, Canada Dep. of Agriculture, Harrow, Ontario.

979. Cumming, D.B.; Stanley, D.W.; deMan, J.M. 1973. Fate of water soluble soy protein during thermoplastic extrusion. *J. of Food Science* 38(2):320-23. Feb. [16 ref]
• ***Summary:*** Water-soluble soybean proteins are made up of four basic ultracentrifuge fractions in differing amounts: 2S comprises 22% of the total, 7S–37%, 11S–31%, and 15S–11%. Much research has been published on each of these fractions. For example, the 7S fraction consists of at least two immunochemically distinct moieties, β-conglycinin and gamma-conglycinin. This research shows that heating in a controlled extrusion process causes most of the water-soluble soybean protein to break into subunits and/or become insoluble. Address: Dep. of Food Science, Univ. of Guelph, Guelph, Ontario, Canada.

980. Kosaric, Naim; Singh, Narendra. 1973. Nutrition–Two views. Kosaric: develop new technologies. Singh: research is on the wrong track. *Ceres: FAO Review on Development* 6(1):32-40. Jan/Feb.
• ***Summary:*** Discusses: Population explosion, amino acid fortification of foods, fish protein concentrate, leaf proteins

and leaf protein concentrate, single-cell proteins (especially petroleum-grown yeast protein), ramie *(Bohemeria nivea)*, etc.

Singh argues that corporate elites from developed countries set the R&D priorities and patterns in Third World countries for their own (elite) benefit, while disregarding simple, local solutions to nutritional problems. "Soy interests have extensively supported specific R & D use of the soybean. TVP promotion is the latest manifestation of their pursuits. In India, even research on groundnuts was supported by North American interests because of the market potential for soybean technology. Now, overt and covert promotional pressures have started to displace groundnut by soybean, even in raw material research and development."

Singh notes that leaf protein research started over 40 years ago and research on petroleum-grown yeast protein (SCP) started about 10 years ago. There are large sidebars on "Amino acid fortification of foods" and "Leaf protein concentrate" based on information provided by the Joint FAO/WHO/UNICEF Protein Advisory Group. Address: 1. Assoc. Prof., Faculty of Engineering Science, Univ. of Western Ontario, Canada; 2. Inst. for Storage and Processing of Agricultural Produce, Wageningen, Netherlands.

981. *Detroit News.*1973. Ottawa–Sell hamburger mixed with soybean protein. April 18. p. A-3, col. 1. Race edition. *

982. Altschul, Aaron M. 1973. The revered legume. *Nutrition Today* 8(2):22-29. March/April. Illust. [2 ref]
• ***Summary:*** Contains a nice but inauthentic illustration of Commodore Perry receiving a soybean plant in Japan. This illustration was created by slightly changing an almost identical illustration printed in Alan B. Cole's book "A Scientist with Perry in Japan: The Journal of Dr. James Morrow" (1947, p. 134). In the original, no soybean is shown. Address: Prof. of Community Medicine and International Health, School of Medicine, Georgetown Univ., Washington, DC.

983. *Toronto Star (Ontario, Canada).*1973. The ugly soybean contains a wealth of protein, vitamins. June 6. p. 77.
• ***Summary:*** The article begins: "Mirror, mirror on the wall, what is the ugliest vegetable of all? The soybean. Some call it 'tasteless.' Others ask 'What do you do with it?' Cost-conscious cooks, nutritionists, and the food industry would be far more understanding."

Under the soybean's dull yellow surface is "a treasure of protein, more than any other vegetable, and substantial amounts of calcium, iron, other minerals and vitamins B and E. Also the soybean has more changes of clothes than any beauty queen." Consider the following guises:

"Eaten like peanuts: Tofu (used in Oriental cooking as bean curd); green (fresh) soybeans (prepared as fresh, or eaten blanched...); dried soybeans (eaten as peanuts or used as other dried beans in cooked dishes); soybean flour (can be mixed with other flours but lacks gluten and can therefore replace only 15 per cent or so of wheat flour in recipes).

"Other aspects of the bean are: Soy sauce (essential in Oriental cooking and mistakenly used in the manner of ketchup by many North Americans 'eating Chinese'); Tamari (pure soy–preferred by vegetarians); miso (fermented soybean paste); soybean milk (liquid or powdered); soybean grits and flakes; lecithin (supplement to control cholesterol build-up)..."

"Soybeans have long been available in health food stores, and some of the larger supermarkets now carry them." The best variety for food use is said to be Bansei. Canned soybeans, which take less time to prepare, make a good beef extender.

Gives recipes for: Soybeans and mushrooms (with "2 cups cooked soybeans" and 1 tbsp. tamari or soy sauce). Baked soybeans (with "1 pound yellow soybeans picked over and washed." Let the beans soak in a large freezer container for 5 hours, then place them in the freezer for at least 24 hours to reduce the cooking time required. "Place frozen beans and liquid in a large kettle. Bring to a boil and simmer gently until tender, adding more hot water if necessary. This takes 2½ to 3½ hours"). Soybean-mint salad (with 2 cups cooked soybeans or 1 can {15½ ounces}), drained. Soy mayonnaise (with ½ cup soy flour).

984. *Saint Croix Courier (St. Stephen, New Brunswick).*1973. Connors' soyabean oil reserves low. 108(44):1. July 26.
• ***Summary:*** "Soyabean oil, a vital ingredient in Connors Brothers sardine products," cannot be obtained by the company at this time, since it is on a "list of critical items including soya beans, soya bean mash and oil restricted by President Nixon..." The freeze was ordered on June 13.

"Connors Brothers was caught unawares in June. A ban was lifted that month and assurance was given that soya beans would be available indefinitely. One week later a second soya bean freeze was imposed.

The U.S. is concerned that its reserves of soya beans will be depleted. Because of the shortage of anchovies in Peru and a subsequent lack of high protein commodities, many countries are in desperate need of soya beans. And despite the vast U.S. soya bean reserves, it is very possible they would sell out.

"However Canada is not a big user of soya beans and is perhaps unfairly included in the general ban."

985. Bhatty, R.S.; Sosulski, F.W.; Wu, K.K. 1973. Protein and nonprotein nitrogen contents of some oilseeds and peas. *Canadian J. of Plant Science* 53(3):651-57. July. [13 ref]
• ***Summary:*** Table 1 gives the nitrogen fractions of 7 oilseed meals and 3 varieties of peas. Soybean contains the following in mg per gram of meal: Meal protein 449. Nitrate nitrogen 0.0. Amide nitrogen: 5.8. Alkali-soluble nitrogen 67.0%. Soybean also contains the following nonprotein nitrogen as a percentage of meal nitrogen: NaOH-TCA 6.8%. EtOH 1.9%. TCA 12.8%.

Table 2 shows the free amino acid composition of the nonprotein nitrogen fractions of 7 oilseed meals and 3 varieties of peas (in micromoles per gram of meal).
Address: Crop Development Centre, Dep. of Crop Science, Univ. of Saskatchewan, Saskatoon, Sask. S7N 0W0.

986. Martin, Larry. 1973. Commodity futures markets–Hedging opportunities for Ontario grain corn and soybean producers. *University of Guelph, School of Agricultural Economics and Extension Education, Publication* AW/73/12. 90 p. July. [9 ref]
Address: Ontario, Canada.

987. Morrison, W.D. 1973. What is protein–The soybean crop, what it's used for, its qualities for feed and pet food. In: Ontario Soya-Bean Growers' Marketing Board, ed. 1973. Ontario Soybean Symposium 1973. Ottawa: Agriculture Canada. 110 p. See p. 47-51.
Address: Dep. of Animal & Poultry Science, Univ. of Guelph, Guelph, ONT, Canada.

988. Murray, Roger. 1973. World seed, oil and protein situation. In: Ontario Soya-Bean Growers' Marketing Board, ed. 1973. Ontario Soybean Symposium 1973. Ottawa: Agriculture Canada. 110 p. See p. 36-46.
Address: President, Cargill Grain Canada, Ltd., 1414 One Lombard Place, Winnipeg, MAN, Canada.

989. Ontario Soya-Bean Growers' Marketing Board. 1973. Ontario Soybean Symposium, 1973. Ottawa: Agriculture Canada. 110 p. Held 11-12 Sept. 1973 at Ridgetown College of Agricultural Technology, Ridgetown, Ontario, Canada. 28 cm.
• ***Summary:*** Contains 17 papers by various authors; 4 are cited separately. This symposium was sponsored by the Ontario Soya-Bean Growers' Marketing Board, Ontario Ministry of Agriculture and Food, and Agriculture Canada. It was organized by a Planning Committee under Milton Farough, chairman.

Contents: Where we are and how we got there–An historical review of soybean production in Ontario, by Dr. J.W. Tanner. What's involved in handling–from a dealer's viewpoint, by J.G. Boughner. What's involved in processing–from a processor's viewpoint, by G.S. Boulter. World seed, oil, and protein situation, by Roger Murray. What is protein–the soybean crop, what it's used for, its qualities for feed and pet food, by Dr. W.D. Morrison. Soybean protein–its role as a food in Canada, by Dr. D.W. Stanley. The futures market as a price discovery mechanism, by Sean Usher. Dealer contracts with growers, by Frank J. Archibald. Contracting–a grower's viewpoint, by William H. Shanks.

The processor in contracts and futures, by D.D. Wright. The role of research, by W.W. Snow. Role of extension in the soybean industry, by John D. Curtis. A grower's viewpoint about present and future soybean production and marketing, by William Sim. Handling, storage facilities, transportation–present and future requirements, by Gordon McNern. Some implications of expanded soybean production on Ontario agriculture, by R.F. Heard. Soybean research, by Dr. R.P.A. Sims. Symposium summary, by Morris Huff. Address: Ontario, Canada.

990. Stanley, D.W. 1973. Soybean protein–Its role as a food in Canada. In: Ontario Soya-Bean Growers' Marketing Board, ed. 1973. Ontario Soybean Symposium 1973. Ottawa: Agriculture Canada. 110 p. See p. 52-56.
• ***Summary:*** Soy processors view soy protein as a food ingredient that "offers the triple advantages of desirable functional properties, high nutritional level and low cost." "To the health food faddists, soybeans and soy proteins provide a reasonable alternative to consuming meat..."

"The four common forms of soy protein are full-fat flours, defatted flours, concentrates and isolates–in increasing order of protein content." Soy protein can also be extruded or spun, and made into simulated meat (meat analogs). Also discusses the major uses of soy proteins (in baking, in meat products, etc.), flavor problems and acceptance, nutritional value, labeling and advertising.
Address: PhD, Food Science Dep., Univ. of Guelph, Guelph, ONT, Canada.

991. Tanner, J.W. 1973. Where we are and how we got there: An historical review of soybean production in Ontario. In: Ontario Soya-Bean Growers' Marketing Board, ed. 1973. Ontario Soybean Symposium 1973. Ottawa: Agriculture Canada. 110 p. See p. 11-22.
• ***Summary:*** The best summary of soybean history in Canada seen up to this time. The author believes that, "based on the chaotic events of the last 12 months... for historical purposes it would seem desirable to divide the history of soybeans into two eras: pre-September 1972 and post-September 1972. Certainly the events of the last year created an awareness in producers and the general public alike of a whole new vocabulary, including words such as anchovies, futures market, protein gap, embargo, superburger, and soaring prices. The latter produced another vocabulary most of which would be unprintable.

"The first report of soybeans grown in Canada was by C.A. Zavitz in 1893 at the Ontario Agricultural College. The seeds had been obtained from Dr. C. [Prof. C.C.] Georgeson, Kansas, who had received them from Japan three years earlier. [Note: Zavitz first published his research on soybeans in 1901, and first reported the results of his 1893 research in 1908]. For 30 years Zavitz, alone in Canada, meticulously conducted trials on variety tests, dates of planting, seed rates and row widths for soybeans grown for seed and hay.

"By 1927, Zavitz had evaluated over one hundred varieties, most of them for five years or over. The 31 year average of his best variety, Early Yellow was 16.78 bu/acre. The 22 year average green crop yield for the variety Ito San was 7.5 tons per acre per year. In 1924, Zavitz released OAC 211, the first variety of soybeans registered by the Canadian Seed Growers' Association. The variety continued as one of the recommended varieties until the mid 40's.

"The soybean program at Harrow was started in 1923 by Dr. F. Dimmock. [In 1923 he grew the first soybeans at Harrow. In 1925 the first soybeans were grown in Kent County. In 1930 the first soybean crosses were made at Harrow.] Dr. Dimmock was transferred to the Ottawa research station in 1927 where he continued his work on soybeans and produced a string of excellent early varieties of soybeans over 35-40 years including Acme, Comet, Crest, Mandarin, Capital, Merit, Kabott and Pagoda. The Harrow research was continued by Casper Owen who started breeding soybeans in 1931. This program was to prove to be one of the most outstanding in North America producing such varieties as AK (Harrow), Harman, Harly, Harosoy and Harome."

"In the late 1920s a few farmers were growing a small acreage of soybeans for grain, harvesting with a reaper and threshing the seed out. Two short-lived crushing plants were established in the south west part of Ontario in the mid-1930s, one of which was located at Shelbourne (or Colbourne [sic, Colborne]) Street in Chatham." Note: Founded in 1934 (see p. 18), this was apparently the first crushing plant in Canada. The name of the company was probably The Soy Bean Oil and Meal Co-Operative Co. of Canada, Ltd. (See C.A. MacConkey 1935, p. 65).
"Subsequently, few beans were grown for hay. The late 1930s were critical years for the soybean in Ontario, and without the help of the Maple Leaf Mills plant (which was primarily processing flax) and Toronto Elevators [which later merged with Maple Leaf Mills in 1962], there would have been no place to market the new crop.

"The establishment of soybeans as a major crop in North America was assured by the occurrence of World War II. Demand for oil created a rapid expansion in acreage and processing facilities, and in the U.S.A. 1940 marked the first year in which the acreage harvested as seed exceeded the acreage harvested for hay. The latter continued to dwindle away and now, represents an insignificant portion of the U.S. acreage.

"The rapid expansion in acreage, once the demand for oil was established, occurred as a result of a major promotional effort by the consuming industries. With the construction of a new plant in Toronto in 1944, Victory Mills launched one of the greatest promotions of a crop ever witnessed in the Province of Ontario. Extension bulletins, newspaper advertisements, movies, newsletters and meetings inundated the farmers with information and enthusiasm. Ralph Chamberlain and later Ivan Roberts promoted the crop at every opportunity. Acreage grew and by the early 50's, the soybean had become a major cash crop in S. Ontario and had its own marketing board.

"As the market for oil increased and the acreage expanded in the 1920's and 30's, the problem of disposing of all of the meal economically became acute, to the point of slowing the expansion... Gradually the feed industry began to recognize the value of the meal in livestock and pet foods with the result that, with a major market established for the meal by-product, the expansion of the oil industry was assured."

"To me there have been three outstanding accomplishments in the development of soybeans in Ontario to date: the pioneering work of C.A. Zavitz at the Ontario Agricultural College... Next, the role of Victory Mills in promoting the crop once the market for oil was established.

"Finally, the development at the Harrow Research Station of the variety Harosoy by Mr. Casper Owen. Released in 1951, Harosoy eventually grew to 80% of the Canadian crop (1965). However, its total impact was even greater in the United States midwest where, in 1966, 26% of the total U.S. crop of 25 million acres was Harosoy, including 42% of the crop in Illinois, 48% in Indiana, 46% in Ohio and 58% of Michigan's crop. To be that dominant, a variety can't just be good, it must be great and Harosoy (and later Harosoy 63) was certainly that."

A graph (p. 20) compares soybean yield in the USA and Canada from 1924 to 1971. The first statistics on Canadian soybean yields date from 1941, and from that year onward Canadian soybean yields were generally higher than U.S. yields–in some year 5-6 bushes/acre higher.

A second graph (p. 22) shows the surprisingly parallel growth of the number of soybean acres harvested from 1924 to 1972. Though the number of acres is smaller in Canada, the rate of growth is almost identical. Address: Crop Science Dep., Univ. of Guelph, Guelph, Ontario, Canada.

992. Lanier, Verle E. 1973. Soybeans: Feed today, food tomorrow. *Foreign Agriculture.* Oct. 15. p. 8-9.
• ***Summary:*** Reflecting the soybean's changing role, U.S. firms this year have exhibited prepared soy foods in both the UK and Italy, with much favorable reaction. Canada has begun importing U.S. soy protein for use in ground beef,

called “superburgers,” and Sweden recently relaxed trade restrictions to allow imports of textured soy products. This rising interest in soybean food uses is part of the concern worldwide over the inability of traditional industries to meet rapidly expanding protein needs.

Current trade estimates indicate that use of U.S. soybeans in protein products for human consumption in both domestic and foreign markets is running about 16 million bushels a year–hardly a dent in a 1,000 million-bushel crop. This amounts to only about 3% of total soy protein produced in the U.S., compared with the 85% that goes into animal feeds and 13% into industrial uses. However, a much brighter future is in prospect, with some experts predicting that the U.S. soy protein market might reach $2,000 million by 1980, contrasted with $75 million or so today. It took modern technology to develop soy products into desirable food items. One example of the possibilities is the growing acceptance of soy-extended ground beef, which is increasingly being seen in supermarkets at prices below those for the all-meat products.

In addition, the institutional trade already is using soy protein to a considerable degree, not only in ground beef, but also in other meat dishes. The major breakthrough here was made in 1971, when the USDA authorized use of textured vegetable protein, fortified with vitamins and minerals, in the Type A School Lunch Program and in lunch or supper of the Special Food Service Program for Children. Textured soy protein can now make up as much as 30% of meat patties, stews, sauces, and similar meat, poultry, or fish dishes. The article defines soy flour and grits, soy protein concentrates, isolated soy proteins, textured soy proteins, extruded soy protein products, spun soy protein products, and soy protein concentrate products. Address: Fats and Oils Div., Foreign Agricultural Service.

993. Leng, Earl R. 1973. Breeding soybeans for high productivity under conditions of developing areas. In: International Inst. of Tropical Agriculture. Proceedings of the First IITA Grain Legume Improvement Workshop. See p. 42-52. Held 29 Oct.–2 Nov. 1973 at Ibadan, Nigeria.
• ***Summary:*** Tables show results of variety trials in Costa Rica (1972), Nigeria (1971), Madhya Pradesh, India (1972), Thailand (1971), Jogjakarta, Indonesia (1971), Brazil (1970-71).

“While a few years ago there were grounds for believing that the USA could supply all the soybeans needed in world grain trade, at the present time it is very clear that this crop is in acutely short supply on a world-wide basis, and that many countries which previously have imported their soybean requirements will be considering means by which they may produce part or all of their needs.

“Development of the soybean from a forage crop into a major grain crop in the USA was made possible by a breeding breakthrough at the University of Illinois in the early 1920’s. Dr. C.M. Woodworth developed types which had an upright, non-branching growth habit, rather than the prostrate, vining habit which previously had been most common. As a result, it became possible to harvest the crop with normal field machinery. Growth in acreage and productivity was explosive.”

“In the USA there is at present a sharp distinction between ‘northern’ and ‘southern’ types. The ‘northern’ varieties are almost all of indeterminate growth habit and are based primarily on Manchurian and Hokkaido germ-plasm. The Manchurian types predominate, except in varieties adapted to extreme northern areas. While these ‘northern’ varieties are considered to be especially day-length sensitive, recent evidence indicates that their early maturity under warmer conditions is influenced more by high temperatures than by actual day-length.”

“The ‘southern’ types may be traced generally to germ-plasm imported from Taiwan or southern China. All the modern U.S. varieties in this class are of determinate growth habit; that is, increase in height virtually ceases once flowering begins. Although these varieties are popularly regarded as less sensitive to day-length, they actually tend to be more day-length sensitive and less temperature-sensitive than the ‘northern’ types.”

“In our experience with variety trials on a worldwide basis, we have found that some of the ‘southern’ types from the USA give superior performance when grown under favorable conditions, as compared with nearly all other germ-plasm tested.”

“Soybean breeding is generally not well developed in countries other than the USA and Canada. Recently, however, Brazil and India have undertaken programs on a significant scale.” Address: Univ. of Illinois, Urbana, IL.

994. Odell, A.D. 1973. Texturization: Vegetable proteins. *PAG Bulletin* 3(3):19-21. Fall. [2 ref]
• ***Summary:*** Approximately 20 major firms in the USA alone are now engaged in the manufacture of textured vegetable protein products. Most of the products are made using extrusion or expansion technology. Address: Industrial Grain Products Ltd., Montreal, Canada.

995. Jaeger, Martin. 1973. Pricing soybeans. *Ontario Ministry of Agriculture and Food, Factsheet.* AGDEX 141/840. 4 p. Dec.
• ***Summary:*** Revision of Factsheet “Marketing Soybeans,” April 1972. Soybeans are priced differently when navigation on the Great Lakes is open and when it is closed in the winter. A farmer receives about $10 more a ton when it is closed. Address: Economics Branch.

996. Schroder, D.J.; Elliot, J.I.; Jackson, H. 1973. Nutritional studies on soybean curd produced by calcium

sulfate precipitation of soybean milk: A research note. *J. of Food Science* 38(6):1091-92. Nov/Dec. [13 ref]
• ***Summary:*** In this study, soybean curd [tofu] was fed to rats as part of a test diet. The level of dietary protein in this diet was 22.31% and the PER was 1.71. The average protein quality (PER soybean curd / PER casein x 100) in this study was 84.6. This test diet meets the amino acid requirements of the rat for all amino acids except methionine. Address: Depts. of Food Science & Animal Science, Univ. of Alberta, Edmonton, Alberta, Canada.

997. Yeung, D.L.; Cheung, L.W.Y.; Sabry, J.H. 1973. The hot-cold food concept in Chinese culture and its application in a Canadian-Chinese community. *J. of the Canadian Dietetic Association* 34:1-8. *
• ***Summary:*** Chinese who immigrated to Canada retained many ethnic food concepts and choices after a decade abroad. There was good agreement on traditional categorizing of foods as hot or cold. Cooking changed these qualities. Most of these Chinese could describe symptoms of taking too much hot food. Conscious efforts were made to balance hot and cold in daily meals.

This whole subject can be indexed under: Ethnic food classifications, Food beliefs and taboos, or eating patterns.

998. Borgstrom, Georg. 1973. World food resources. New York and London: Intext Educational Publishers. xi + 237 p. For soybeans, see p. 20-21, 136-37, 222. Index. 23 cm. Series: Intext Series in Ecology. [210* ref]
• ***Summary:*** Contents: Series preface. Preface. Introduction. Section I: Production. 1. Food commodities. 2. Prerequisites for crop production. 3. The tropics. 4. Crops and water. 5. Livestock and poultry. 6. What oceans and freshwaters provide. 7. Visions of the future. Section II: Utilization. 8. Food storage, processing, and marketing. 9. International trade in food and feed. Section III: Consumption. 10. Man's needs. 11. Food and population. 12. Nutrition and health. 13. Protein: the key issue. 14. Food and the ecology crisis. Supplementary tables.

The United States is presently the world's largest producer of soybeans, producing 67% of the total; China produces 24.5% and Others produce the remaining 8.5%. Three pie charts show global production of soybeans and peanuts (groundnuts) (p. 20-21). The section on "Oilseeds" (p. 136-37) also discusses soybeans and peanuts. Tables show (p. 222): (1) "Soybeans–world trade–annual average of 1967-1969 (millions of metric tons)." The USA has 90.1% of the 8.74 MMT of world exports. Europe has 58.3% and Asia has 36.3% of the 8.64 MMT of world imports. The leading countries for net soybean imports are: Japan 2.39, West Germany 1.48, Spain 0.92, Netherlands 0.66, Italy 0.61, Denmark 0.42, Taiwan 0.40, and Canada 0.38. (2) United States soybean exports (millions of bushels). Gives quantity and percentage of total for major regions and individual countries in 1967-68 and 1969-70. The protein in these exports is used mostly for livestock feed; no hungry countries are major importers of soybeans.

India is the world's leading producer of peanuts, producing 33% of the total, followed by China (13.5%), Nigeria (7.3%), the USA (7.2%), and Other (39%). Address: Michigan State Univ.

999. Fornari, Harry. 1973. Bread upon the waters: A history of United States grain exports. Nashville, Tennessee, and London, England: Aurora Publishers. xvii + 174 p. Illust. Index. 23 cm. Summarized in Soybean Digest, July 1973, p. 18. [103* ref]
• ***Summary:*** The publication of this history of the U.S. grain trade coincides with Bunge's 50th anniversary as a grain trader and handler. Bunge has more than 30 offices, and owns and operates over 100 grain storage elevators, terminals, and other facilities throughout the U.S. and Canada.

Contents: Preface. Acknowledgments. 1. Corn from the colonies. 2. Antebellum seesaw. 3. *La Belle Epoque.* 4. Feasts, famines, and world wars. 5. 1945-1970: The staff of life. 6. 1945-1970: Feed grains, unlimited. 7. 1945-1970: The soybean explosion. 8. Portrait of an exporter. Bibliography.

Chapter 7 titled "1945-1970 The soybean explosion" (p. 131-42), discusses early history of the soybean (poor), introduction into the USA, expansion of cultivation, early exports, effect of World War II on increased production, soybean oil and meal, Soybean Council of America.

A graph (p. 139) shows U.S. soybean exports from 1945-1970. A table (p. 140-41) gives the following U.S. soybean statistics yearly from 1945-1970: Acreage grown for all purposes, acreage harvested for soybeans, yield in bushels/acre, production (million bushels), domestic crush (million bu), exports of soybeans (million bu), soybean oil (million lb), and soybean meal (1,000 tons), exports of soybeans as a percentage of production, exports of beans and meal as a percentage of bean production, price received by farmers ($/bu), average prices of soybeans (#2 yellow at Chicago, $/bu), soybean oil (crude Midwest, cents per pound), soybean meal (44% protein, bulk, Decatur, $/ton of 2,000 lb).

This book contains 47 pages of illustrations (many very old) and photos.

On the inside back dust jacket is a photo and biography of Harry Fornari, who was born in Rome in 1919 and came to the USA in 1939. Address: Great Neck, New York, Vice President, Bunge Corp.

1000. George Ohsawa Macrobiotic Foundation. 1973. Useful names and addresses. 1471–10th Ave., San Francisco, CA 94122. 55 p. 21 cm.

• ***Summary:*** This macrobiotic directory lists names and addresses of macrobiotic people, organizations, food stores and restaurants, and bookstores in the United States (each category broken down by state), Canada, and abroad. The leading states for individuals are California (7.3 pages), New York (1.5 p.), and Massachusetts (1 p.).

There are listings for the following foreign countries: Argentina, Australia, Austria, Belgium, Brazil, Costa Rica, Denmark, England, France, Germany, India, Ireland, Italy, Japan, Mexico, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, South Vietnam.

There are ads for the following companies: Sunflower, The Queensberry Bakery (112 Queensberry St., Boston 02215), East West Foundation Center, Sanae Inc. at 2 locations (Sanae Restaurant at 272A Newbury St., Boston, and The Seventh Inn at 288 Boylston St. in Boston), Prasad (1956 University Ave., Berkeley, California) (p. 0). Eden whole earth grocery and delicatessen, and Sun Bakery (330 Maynard St., Ann Arbor, Michigan) (p. 18). Janus Natural Foods (712 7th Ave. South, Seattle, Washington 98104. Phone: 206-MA4-1084) shows that they distribute (import) tamari and miso, as well as sea vegetables. They carry the following brands: Erewhon, Spiral Foods, Deaf Smith, Pure & Simple, Chico-San, Arrowhead Mills (p. 27). Cliffrose (129 Coffman, Longmont, Colorado). Ceres Harvest Natural Foods (3632 W. Colorado Ave., Colorado Springs, CO 80904; wholesale and retail) (p. 39). The Good Karma Cafe (501 Dolores St., San Francisco), and The Good Earth (123 Bolinas Rd., Fairfax, CA 94930) (p. 50). Greenberg's Natural Foods, Inc. (125 1st Ave., New York, NY 10003).

The George Ohsawa Macrobiotic Foundation is a non-profit organization located at 1471–10th Ave., San Francisco, California 94122. It was founded in 1971. The aim of the Foundation is to spread the teaching of the unifying principle and its practical applications in daily life. Address: San Francisco, California.

1001. Hartwig, Edgar E. 1973. Varietal development (in soybeans). In: B.E. Caldwell, ed. 1973. Soybeans: Improvement, Production, and Uses. Madison, Wisconsin: American Society of Agronomy. xviii + 681 p. See p. 187-210. Chap. 6. [68 ref]

• ***Summary:*** Contents. 1. Introduction. 2. Maturity classification. 3. Photoperiod response: Latitude, light quality. 4. Early history. 5. Growth habit. 6. Germplasm collection: Range of maturity, seed size (seed weight), percent protein and oil, oil quality, protein quality, seed holding (pod dehiscence and shattering), seeds per pod, pubescent type (pubescence density and erectness, glabrous), response to minerals, source of genes for pest resistance (disease resistance).

7. Varietal development: Introduction and history, the northern states (Lincoln, Harosoy, Clark, Hark, Amsoy, Corsoy, Wayne), the southern states (Ogden, Roanoke, Jackson, Palmetto, Lee), mid-Atlantic states. 8. Genetic background for major U.S. varieties. 9. Breeding for special qualities: Phytophthora rot, brown stem rot, cyst nematodes, resistance to feeding by insects, differences in oil and protein content, vegetable types, height of lower pods, adaptation to short-day regions [i.e. southern latitudes]. 10. Comments.

"Varietal development" has been of great importance in establishing the soybean as a major crop in the USA. Understanding photoperiodism in relation to varietal development has also "been of extreme importance. For no other major crop is photoperiodism as important in determining area of adaptation" (p. 187).

Maturity classification: In the early 1900s, soybeans were often classified on a scale from early to late, and the number of days to maturity was given. But various studies, starting with Haberlandt (1877), including Mooers (1908), and especially those by Garner and Allard (1920-1930) on the significance of day length on flowering behavior (photoperiodism), indicated that "days to maturity was not an adequate means of describing these types. Also, it was not adequate to describe them as early or late"–unless the latitude and date of planting was given, since the average days maturity for any given variety depends strongly on both of these variables. As a method of describing this responsiveness to day length, ten maturity groups were developed. For example, groups OO, O, and I are adapted to the longer days in the northern areas of adaptability in the USA and Canada. Varieties classed in Group VIII are adapted to the southernmost portions of the continental United States.

Early history: Discusses–Perry expedition to Japan (1854), Ball (1907–recognized 23 varieties), Piper & Morse (1910–described 47 soybean types and listed 280 types that had been grown in the Washington, DC, area). By 1922 more than 800 introductions had been made by the USDA and tested in various parts of the United States (Piper & Morse 1923). Some 43 introductions, which were found to be suited for production in the USA, were given names. Suitability for forage production was emphasized. During the 20-year period from 1907 to 1927, more than 2,000 lots of seed received from China, Japan, Korea, Siberia, and India were introduced by the USDA for testing (Morse 1927). Dorsett (1927) collected nearly 1,500 seed lots from northeastern China (39-53º north latitude) during a 2½-year period prior to 1927.

Because of the growing interest in soybeans in the United States, the USDA organized the Dorsett-Morse expedition to the northeast provinces of China, Korea, and Japan during the years 1929 to 1931. This was the only plant exploration program for which the primary objective was soybean collection. A total of 4,578 seed lots were collected. Of these, 3,379 (74%) were from Korea, 622 (14%) were from China, and 577 (13%) were from Japan.

Many of the soybeans from Japan were "large-seeded, vegetable types. Several of these were named in anticipation of their acceptance by the U.S. public, but few were ever grown extensively. One of these, PI 80481 named Rokusun, has a 100-seed weight of 55 gm, the largest seed size known in soybeans."

Germplasm collection: "Prior to 1949, no organized effort was made to maintain soybean introductions. Many were discarded after their initial observation if an immediate use was not recognized. Since that time an effort has been made to catalog the characteristics of each introduction and maintain viable seed."

Seed size: The 100-seed weight for soybean varieties currently produced in the USA ranges from 12-18 gm. Varieties classified as vegetable types will usually have a 100-seed weight greater than 20 gm. The seeds of *Glycine max*, the cultivated soybean, range in weight from 4 to 55 gm per 100 seeds. The wild annual soybean, *Glycine ussuriensis*, has very small seeds (1.2 to 1.8 gm/100 seeds).

Concerning vegetable types: "No clear-cut distinction exists to define a vegetable-type soybean. In general, seed size is in excess of 20 gm per 100 seeds and the beans have a milder flavor. Several vegetable-type varieties with somewhat improved agronomic qualities have been released in recent years. Disoy is of Group I; Magna and Prize are of Group II; and Kim, Kanrich, and Verde are of Group III in maturity. Verde produces seed having green cotyledons on maturity, which is assumed to be an advantage when immature seeds are used for canning or freezing." Address: Agricultural Research Service–USDA, Stoneville, Mississippi.

1002. Holmberg, Sven A. 1973. Soybeans for cool temperate climates. *Agri Hortique Genetica (Sweden)* 31(1/2):1-20. [21 ref. Eng; swe]

• ***Summary:*** An extremely interesting, influential, and original article. Contents: Introduction. Climate and temperature requirements of soya. Breeding soybeans in Sweden. Experiences from 30 years of soybean trials at Fiskeby. Summary.

It begins: "Summer temperature and moisture are the main climatic factors regulating the distribution of the soybean as a crop. The limiting or inhibiting factor is moisture in the eastern and southern parts of Europe and temperature in the northwestern parts (Riede 1938). Within the framework outlined by temperature and water, latitude and photoperiodism guide the choice of varieties (Enken 1959)."

"Local soybean varieties developed and grown along the east coast of Hokkaido and adjacent islands of the Okhotsk Sea have proved of immense value for the breeding of soybeans for cool, temperate climates."

Enken (1959) defined minimum temperatures for different stages in the growth cycle of the soybean plant and showed that the flowering stage is the most sensitive to temperature, requiring a minimum of 17-18ºC for normal flowering. Most of Western Europe has a summer maximum temperature below or just about equal to V. Enken's "biological minimum" temperature needed for the formation of reproductive organs and flowering.

For soybean breeders looking for basic material [germplasm] for adaptation to the cool climate of north western Europe, two different agro-climatic regions are of special interest: (1) Near Kushiro, Abashiri, or Nemuro on the northeastern coast of Hokkaido, Japan, and adjacent islands of the Sea of Okhotsk. (2) The northern zone of the Amurskaja region [Amurskaya Oblast] of East Siberia, Russia. In this old and recently developed soybean growing district (just north of the Amur River and of northern Manchuria), cold hardiness is the object of both natural and artificial selection. This zone is about 1,200 miles northeast of northeastern Hokkaido.

"Summary: Cold tolerant soybean varieties are the result of a long period of natural selection and persistent effort of growers settled in the cool and foggy regions of the east coast of Hokkaido and adjacent islands of the Okhotsk Sea. These dwarf or semi-dwarf local varieties collected and investigated by Japanese research workers are of increasing importance to soybean breeding for cold tolerance in Hokkaido and elsewhere. The same varieties rank high in protein content and seed quality, but scarcely in seed yield. Their tolerance to cold weather has been the key which has opened to modern plant breeding large parts of north western Europe, including Sweden, to closer geneecological adaptation and further development of the soybean as a food crop. The variety Fiskeby V, in practical use as a garden variety, may be said to prove this. The existence in the Soviet Union of varieties with more moderate demands on germination temperature and high yielding varieties in the north of the United States are indicators of possibilities that further combination work will lead to further progress in producing varieties capable of competing with the cereals as modern agricultural crops."

Tables: (1) Temperature requirements of the soybean (after Enken and Koloskov). The four columns are: Stage of development, "Biological minimum," sufficient, and optimum. The six stages are: Germination, emergence, formation of reproductive organs, flowering, seed formation, and ripening. For flowering (as an example), the three temperatures are 17-18, 19-20, 22-25ºC.

(2) Some data regarding summer climates of certain stations situated in warm and cool temperate areas, respectively. The four columns are: Station (in two groups), period (years during which temperatures were measured), latitude, warmest summer month ºC, summation of day-degrees ºC 5 months. The stations are: Warm temperature: Columbus, Ohio, USA; Chicago, Illinois, USA; Shenyang (Mukden) China; Sapporo (Hokkaido) Japan; Pinkiang

(Harbin) China; Chabarovsk [Kabarovsk], East Siberia, USSR [Russian Federation]; Winnipeg, Manitoba, Canada. Cool temperate: Abashiri, Hokkaido, Japan; Nemuro, Hokkaido, Japan; Brussels (Uccle), Belgium; London (Kew), England; Manchester, England; Copenhagen, Denmark; Norrköping (Fiskeby) Sweden–1931-1960 Norrköping (Fiskeby) Sweden–1960-71. Of all the stations listed, Fiskeby has the highest north latitude (58º36'), the coolest summer month (July, 16.2ºC), and the smallest summation of day-degrees over 5 months (2120–compared with 3192 in Columbus, Ohio).

(3) Mean temperatures, ºC, at Fiskeby / Nörkopping (latitude 58º36'), for the years 1970-1972. Temperatures are given each year for the months of April, May, June, July, August, September, October. August was the warmest the first year and July the 2nd and 3rd years.

(4) Local varieties of insular breed in yield tests at Fiskeby 1970-1972. Control: Fiskeby 5. The nine columns are: Variety, year (1970, 1971, 1972), date of seeding, date of bloom, date of ripeness, mean height of plants (cm), plants per square meter, seed weight (grams/plant), yield (kg/ha). The varieties include: Toshi-dai 7910, Karafuto 1 (from South Sakhalin), Fiskeby 5, Kamishunbetsu, Chishima (from the Kuril Islands).

(5) Market varieties of continental breed in yield test at Fiskeby 1970-1972. Control: Fiskeby 5. The nine columns are the same as those in Table 4. The varieties are: Amurskaja 310, Smena, Severnaja 4, Fiskeby 5, Altona. The highest yield (2,905 k/ha) was from Amurskaja 310 in 1972, planted on 25 April. The 2nd highest yield was from Smena in 1972, planted on 25 April. The 3rd highest was from Fiskeby 5 in 1972, planted on 25 April.

(6) Soybean varieties from three different agro-climatic regions–tested for germination in sand at a temperature of 9ºC in the day-time and 7ºC during the night. Almost all of each group would germinate at 20ºC. The table shows the per cent visible sprouts above sand surface after 14 to 21 days. The varieties in group 2 (Amurskaja 310, Severnaja 4, Smena) had the highest germination rates (range: 79-83% visible after 21 days).

(7) Soybean varieties from three different agro-climatic regions–tested for germination in sand at a temperature of 8ºC in the day-time and 6ºC during the night. Again, the varieties in group 2 (Amurskaja 310, Severnaja 4) had the highest germination rates (range: 55-66% visible after 26 days). They also had the longest mean length of seedlings after 26 days (47-48 mm).

(8) Protein and oil content of soybean varieties, grown at Fiskeby, during the years 1970-1972. In 1971 the mean protein content was 43.9% (range 39.1-48.4%) and the mean oil content was 14.9% (range 13.3-17.3%). In 1972 the mean protein content was 41.8% (range 38.3-47.0%) and the mean oil content was 15.8% (range 13.6-17.7%).

(9) Advances in earliness and lowering of temperature requirement, expressed in days from sowing and day-degrees ºC, respectively, in the breeding material at Fiskeby.

(10) Results regarding the variety Fiskeby V from Fiskeby near Norrköping during the years 1960-1972. The fifteen columns are: Year, seed yield (kg/ha), plants per square meter, planting date, start of flowering date, date of ripeness, days from planting to flowering, days from planting to ripeness, summation of daily mean temperatures ºC from planting to flowering, summation of daily mean temperatures ºC from planting to ripeness, mean temperatures ºC from planting to flowering, mean temperatures ºC from 1st flower and 30 days ahead, mean temperatures ºC from planting to ripeness, total rainfall from June to August (mm), total sunshine hours from July to August. The highest seed yield was in 1972 (2,290 kg/ha); the 2nd highest was in 1970 (2,030 kg/ha).

(11) The variety Fiskeby V at Fiskeby during the periods 1960-1972 and 1968-1972.

Figures (graphs unless otherwise stated): (1) Yield in relation to average July temperature for the years 1970-1972 for the varieties Fiskeby 5, Chishima, Amurskaja 310, and Altona [developed at the University of Manitoba, Canada]. As the July temperature increases, so does the final seed yield.

(2) Yield in relation to general temperature requirements (Sum of day-degrees). For the varieties Fiskeby 5, Chishima, and Amurskaja 310. As the sum of day-degrees increases, so does the final seed yield–dramatically.

(3) Soybean varieties from 3 different agroclimatic zones tested for germination in sand at a day temperature of 9ºC and a night temperature of 7ºC (See table 6). The variety with the highest germination after 21 days is 1091-3-1-6-1 from zone 3.

(4) Soybean varieties from 3 different agroclimatic zones tested for germination in sand at a day temperature of 8ºC and a night temperature of 6ºC (See table 7).

(5) Chart showing the origin / pedigree of Fiskeby 5 and some other interesting lines from the breeding material–including 1110-5-5-5 and 990-13-2-5-3-1-1 and 1091-3-1-6-1.

(6) Photo (7.5 by 11 cm, black and white) showing fields of “A nice, evenly ripening crop of Fiskeby V in September 1971, with the buildings of the Fiskeby-Breeding Station near Norrköping in the background.

(7) Rayed diagram of recent crosses made including 1091-3-1-6-1 (which is at center of diagram).

(8) Photo of three dry soybean plants with a ruler measuring 0 to 70 cm at the right. Cross 1174, 1091 x Fiskeby V. From left to right: F-2 plant from cross 1174, Fiskeby 5, another F-2 plant from cross 1174.

1003. Ito, Kazuo. 1973. Issei: A history of Japanese immigrants in North America. Translated by Shinichiro Nakamura and Jean S. Gerard. Seattle, Washington: Executive Committee for Publication of Issei, c/o Japanese Community Service, 1414 S. Weller St., Seattle, WA 98144. xxviii + 1016 p. Illust. Index of personal names only. 24 cm. Translation of *Hyakunen Sakura*. [100* ref. Eng]

• ***Summary:*** This massive book is basically a history of first-generation Japanese immigrants to Pacific Northwest (especially Washington, Oregon, and British Columbia), focusing on the great struggles and hardships they met, written from the viewpoint of individual Japanese who tell their stories (often in the first person), and compiled by a Japanese journalist. The book was first published in Japanese. Access to the wealth of information it contains is crippled by the lack of a subject index. So if one were looking for information about tofu, miso, or soyfoods, one would have to read the entire book. The index of personal names is well done.

At the very front of this book are very interesting maps of the old Japanese districts of the following cities: Seattle, Tacoma, and Spokane, Washington; Portland, Oregon; Vancouver, British Columbia, Canada. Unfortunately, none of the maps are dated. The name and location of each Japanese organization or business is shown clearly in English.

In Part 8, "Agriculture," we read that Japanese immigrants to American sometimes enjoyed Japanese soyfoods. In about 1910, in Fife, a farming community near Seattle, in about 1910, Gunji Fujimoto "had miso soup and pickles for breakfast" (p. 440). In about 1916, in Hood River (northern Oregon), Henry Nakamura wrote that Japanese people could get foods from Japan, including "fried bean curd" (p. 499-500). There they also enjoyed miso soup for breakfast, cooked red beans [azuki?] spread on bread for lunch, and rice, pickles, and dried radish strips cooked with soy sauce for dinner (p. 503). In the early 1920s in Oregon, breakfast typically consisted of rice, miso soup, and pickled cucumbers (Shoemon Nakamura, p. 512).

Part 20, "On the Streets," states that "The old Japanese towns in Seattle, Tacoma, Portland, and Vancouver (Canada) can hardly be traced today." The author has tried to reconstruct maps of these towns "in roughly the period of the 1920s, but not in any specific year" (p. 779-80). In Nov. 1908 Masanao Hanihara, Secretary of the Japanese Embassy, issued a report on his investigations of living conditions of Japanese in the western USA (p. 791). He found the Japanese still lived "at the level of immigrant laborers;" the conditions in their communities were "extremely low and chaotic." "The Japanese in these areas hardly mix with white residents, while sometimes they approach or mix with Chinese. There are many ill effects from clique-ishness." "The majority of Japanese workers lack knowledge of English, so whenever they make contracts they sign papers blindly" (p. 795-96). Hanihara estimated the Japanese population of various states as follows: Washington 9,000 to 10,000, Oregon 3,500 to 4,500, Wyoming 1,000 to 1,500, Idaho 1,000 to 1,500, Montana 1,000, and Alaska 1,000. The largest Japanese community in the region was in Seattle (about 4,000 Japanese). "Shinzaburo Ban of Portland is almost the top among successful Japanese on the Pacific Coast." His business, S. Ban Co., headquartered in Portland (where he arrived in 1891), acts mainly as a contract agency for Japanese laborers–a sort of employment agency, "and his store supplies sake, miso, soy sauce and other such Japanese foods and small items to the laborers" (p. 789-93; see portrait photo p. 792). A sidebar (p. 793, by Raisuke Tamura, Seattle) notes that "However long they lived in the United States, Japanese had to have Japanese food... Around 1906 I imported from Japan vegetables such as lotus root, Japanese radish *[daikon], gobo* (burdock), *zenmai* (fern), *abura-age* [deep-fried tofu pouches], *nigari* (bittern, a tofu coagulant), *tsukuneimo, yamaimo,* and so on, in hundred-pound baskets, and sold them to sawmills and railroad camps" (p. 793).

The 1 January 1916 edition the *Hokubei Nenkan* listed all businesses operating in various Japanese towns. These included two "tofu-makers" in Seattle, Washington (p. 800), at least one tofu maker in Tacoma, Washington (p. 804. Tacoma had a Japanese population of 931 in 1915–721 males and 210 females). Spokane didn't have a Japanese town as in Seattle and Tacoma, but in 1915 it did have a Japanese population of 536 (462 males and 74 females).

The map of old-town Portland, Oregon, probably from about 1935, shows 90 Japanese businesses located between 1st Ave. and 7th Ave. (running north-south) and between W. Burnside and N.W. Glisan (running east-west). Among these are two tofu manufacturing companies. "Ota Tofu Mfg." is located on 5th Ave. between Everett and Flanders. [Note: The actual address was 86½ 5th N]. "Fukei Tofu Mfg." is located is on N.W. Davis between 3rd Ave. and 4th Ave.

Contents: The book is divided into 21 parts, with each part containing several chapters (the number is shown in parentheses): 1. Sailing (6). 2. Secret passage and ship-jumping (5). 3. Japanese exclusion (15). 4. Japanese women (2). 5. Railroads (5). 6. Alaska (4). 7. Sawmills (2). 8. Agriculture (7). 9. Hotels (2). 10. Restaurants (2). 11. Mines (2). 12. Oysters (2). 13 Japanese language schools (2). 14. Studying English (3). 15. Pro-Japanese (8). 16. Furuya Company (4). 17. Lese majesty affairs (2). 18. Gambling (3). 19. Girls (2). 20. On the streets (9). 21. In Memorium [Memoriam–to the many who died]. (2). Appendixes: (1) Partial list of Japan-U.S. and Japan-Canada sister cities. (2) Japanese consulates. (3) Chronological table: Japan and America (side by side), 1868-Sept. 1972. Bibliography (p. 967-72, mostly Japanese-language books). Epilogues: To

English and to Japanese editions. Index of personal names (p. 988-1016). Address: Tokyo and Seattle, Washington.

1004. Konova, L.; Rainova, L. 1973. Biologichni i stopanski kachestva na introdutsipani sortove soia. II. [Biological and commercial properties of introduced soybean varieties. II.]. *Rastenievudni Nauki (Plant Science, Bulgaria)* 10(5):75-84. [4 ref. Bul; eng; rus]
• ***Summary:*** "Twenty-two introduced soybean varieties were studied under Sofia conditions. Their seed yields, crude protein and fat contents of seed as well as the complexity of yield were subjected to the study." The mid-season varieties proved to be the best producers. The highest seed yield, 2,413 kg/ha, was obtained from the Hungarian variety Szurkebarat, followed by the Canadian variety, Merit, with 2,340 kg/ha. Address: Inst. of Genetics and Plant Breeding, Sofia, Bulgaria.

1005. Orok, Etim Jonathan. 1973. Comparison of peanut meal, rapeseed meal, and soybean meal as protein supplements for pigs and laboratory rats. PhD thesis, University of Alberta, Canada. In: Index to American Doctoral Dissertations (1956-67), 1974. *
Address: Univ. of Alberta, Canada.

1006. Lundstedt, Erik; Lo, Frank Y. Assignors to Hong Kong Soya Bean Products Co., Ltd. (Kwun Tong, Kowloon, Hong Kong). 1974. Heat stable curd from soya bean milk and process of manufacture thereof. *Canadian Patent* 941,228. Feb. 5.
• ***Summary:*** Prepare soymilk with 6% solids. Add 1-10% by weight of edible fat. Heat to 93.5ºC with steam for 10 minutes. Homogenize at 2,500 lb. pressure. Cool to 24ºC. Add calcium chloride coagulant under strong agitation to form curds at below 49ºC. Heat to 71ºC. Cool to separate whey for superior smooth, silky curds. Hot pack by heating to at least 66ºC. Homogenize. Pump and pack hot. This is a curd, not cheese; there is no fermentation. Address: 1. South Chatham, Massachusetts; 2. Kwun Tong, Kowloon, Hong Kong.

1007. Fleming, S.E.; Sosulski, F.W.; Kilara, A.; Humbert, E.S. 1974. Viscosity and water absorption characteristics of slurries of sunflower and soybean flours, concentrates, and isolates. *J. of Food Science* 39(1):188-91. Jan/Feb. [15 ref] Address: Depts. of Crop Science and Dairy & Food Science, Univ. of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N OWO.

1008. Rosenberg, Monda. 1974. One-pot meals liberate the cook. *Toronto Star (Ontario, Canada).* March 13. p. G1. Family Section
• ***Summary:*** Grandmother knew that a big pot of slowly simmering stew was the easiest way to always have dinner ready. Today, the pot has been replaced by woks and crock pots. Stir-frying food in a wok is neither new nor mysterious.

Joni Boyer, a young Toronto mother, likes to stir-fry most of her meals; its quick and easy. "In Joni's rounds of Chinese grocery stores, she has discovered an extremely source of protein–soybean curd. Made from boiled soybean milk, it is strained, curdled, spooned into muslin and then weighted to squeeze out moisture. Since these delicate pieces break apart easily, Joni just heats them through. In the Orient it is known as the 'meat without bones.'"

Five photos show women preparing one-pot meals. Address: Staff food writer.

1009. Brewer, D.; McLachlan, J.; Neish, A.C.; Shacklock, P.F.; Taylor, A.; MacIntyre, T.M. 1974. Effects of *Chondrus crispus* on fertility, pregnancy, and post-natal welfare of Shropshire ewes. *Canadian J. of Animal Science* 54(1):41-45. March. [14 ref. Eng; fre]
• ***Summary:*** At the Experimental Farm, Nappan, Cumberland County, Nova Scotia, eight Shropshire ewes, 4 to 9 years old, were fed *Chondrus crispus* (Irish moss–a type of seaweed/marine red algae, and the source of carrageenan), plus hay to appetite, and 0.68 kg daily of a mixture of rolled barley, soya bean oilmeal, and minerals. The diet helped to prevent ovine ill-thrift. Address: 1-5. Atlantic Regional Lab., National Research Council of Canada, Halifax, Nova Scotia; 6. Agriculture Canada, Experimental Farm, Nappan, Nova Scotia.

1010. Sen, N.P. 1974. Nitrosamines. In: I.E. Liener, ed. 1974. Toxic Constituents of Animal Foodstuffs. New York: Academic Press. x + 222 p. See p. 131-94. Chap. 5. [217* ref]
• ***Summary:*** "Magee and Barnes (1956) first reported the carcinogenicity of dimethylnitrosamine (DMN) in rats and subsequent reports (Schmaehl and Preussmann, 1959; Druckrey et al., 1967) established that DMN as well as many other *N*-nitrosamines [pronounced nai-TRO-suh-meens] are carcinogenic to a wide range of species causing cancer at different sites of the body...

Page 161 notes: "Recent reports (Hedler et al., 1971) indicate that soybean oil may contain fairly large amounts of DMN (0.45 ppm) and dibutylnitrosamine (0.29 ppm). The identity of DMN was confirmed by GLC-mass spectrometry."

Note: GLC stands for gas-liquid chromatography (a term first used in 1952). *Webster's Dictionary* defines mass spectrometry (a term first used in 1943) as "an instrumental method for identifying the chemical constitution of a substance by means of the separation of gaseous ions according to their differing mass and charge." Address: Food Research Laboratories, Health Protection Branch, Dep. of Health and Welfare, Ottawa, Canada.

1011. Ontario Soya-Bean Growers' Marketing Board, Information & Public Relations Dept. 1974. Canadian soybean industry trends & related rapeseed industry trends. 2nd ed. Chatham, Ontario, Canada. 20 p. 28 cm.
• ***Summary:*** Figures related to soybeans show: (1) Table: Acreage, yield, production, and farm value (per bushel, total, and per acre) in Ontario, by county, 1972. The three counties with the biggest acreage are Kent (130,200), Essex (128,000), and Lambton (98,000). Total Ontario acreage: 405,000. Average yield: 34.0 bu per acre. Total production: 13,770,000 bushels.

(2) Table: Acreage, yield, production and farm value, Ontario, 1942-1972, with five-year averages.

(3) Table: Canadian soybean production, crushings, imports, exports, and net consumption yearly from 1961-62 to 1973-74. Peak imports were 18.263 million bushels in 1969/70. Peak exports were 3.909 million bushels in 1964/65. Production statistics from OMAF (Ontario Ministry of Agriculture and Forestry). All others from Statistics Canada.

(4) Graph: Of statistics in table 3.

(5) Table: Canadian soybean oil statistics. Production, imports, exports, and net consumption yearly from 1961-62 to 1972-73.

(6) Graph: Of statistics in table 5.

(7) Table: Canadian soybean meal statistics. Production, imports, exports, and net consumption yearly from 1961-62 to 1972-73.

(8) Graph: Of statistics in table 7.

(9) Canadian edible oil production statistics, for soybean, rapeseed, and all others, 1966-67 to 1972-73. One column each: Margarine, shortening, salad and cooking oil, grand total. * All others includes coconut, corn, palm, peanut, sunflower marine and animal oils. In 1972-73 about 2/3 of the total oil used was rapeseed and one-third was soybean.

(10-11) Graph: Of statistics in table 10.

(12) Oils used in Canadian margarine, 1961-62 to 1972-3. One column each: Vegetable, marine & fish, animal. The amount of vegetable oil has increased steadily, while the amount of marine & fish, and of animal, have both decreased steadily.

(13) Graph: Of statistics in table 12.

(14) Oils used in Canadian shortening, 1961-62 to 1972-3. One column each: Vegetable, marine & fish, animal. The amount of vegetable oil has increased steadily, while the amount of marine & fish has decreased steadily, but the amount of animal has increased slightly.

(13)

(15) Graph: Of statistics in table 14.

(16) Oils used in Canadian salad & cooking oils, 1961-62 to 1972-3. One column for vegetable only. The amount of vegetable oil has increased steadily.

(17) Graph: Of statistics in table 16.

(18) Ontario soybeans: Mean values and ranges of oil & protein content (all counties), 1970-1973, by grade. Address: Chatham, Ontario, Canada.

1012. Application for recognition in the Canadian Agricultural Hall of Fame Association. 1974. Guelph, Ontario, Canada. 13 p. 28 cm. [2 ref]
• ***Summary:*** C.A. Zavitz was born in 1863 in Ontario, Canada, in Lobo Township, Coldstream village, Middlesex County. He died on 17 March 1942, and is buried at the Friends Burying Ground, Coldstream, Ontario. Primary and secondary education: Middlesex Country School System, then Strathroy High School. College: Ontario Agricultural College (1884-1886, completed degree course and graduated with B.S.A. degree from Univ. of Toronto). In 1916 received Doctor of Science (Honorary) from Univ. of Toronto. In 1935 received Doctor of Laws (Hon.) from Western University. In 1999 received posthumous Doctor of Laws (Hon.) from Western University. He married and had one child, Mr. Raymond Zavitz, of Ilderton, Ontario, now deceased. He lived and worked in Guelph, Ontario, for 41 years, and travelled widely in North America.

(A) Vocational contributions to agriculture in Canada: "1. Dr. Zavitz is best known for his work on cereal improvement. His early use of the nursery plot system produced OAC 21 barley which was widely acclaimed for its malting quality. 2. He devoted much research and effort into the development of alfalfa in Canada. Ontario's success in growing alfalfa is in a large measure due to the work of Dr. Zavitz. 3. Dr. Zavitz expended considerable effort on potatoes and became one of Canada's best authorities on the crop. 4. He was one of America's pioneer investigators of the usefulness of the soybean crop to this continent. Varieties suitable to Ontario were released. 5. His use of small experimental plots, pure line selection and hybridization and his research thoroughness, all made contributions to research methodology. 6. Dr. Zavitz published widely. These publications include Bulletin 228, Farm Crops; Bulletin 280, Alfalfa; Bulletin 332, "Forty years' experiments with grain crops."

"(B) Leadership: List in order of importance any plans or policies which were conceived by the nominee, but not necessarily executed by nominee: 1. As secretary, Dr. Zavitz provided the leadership necessary to expand the Ontario Agricultural and Experimental Union into a very highly successful extension programme. 2. Dr. Zavitz was one of the prime movers in the development of the Canadian Seed Growers Association. 3. He used the success of his Mandscheuri type barley as a lever to the legislators for continued support of the programmes at OAC. 4. He was first chairman of the Canadian Friends' Service Committee. 5. In Florida he was one of the promoters and founders of a permanent Friends' Meeting in St. Petersburg. 6. After

retirement, he published a booklet called 'Spiritual Life', recording his personal thoughts on spiritual themes."

(C) Summary, prepared by R.P. Hunter, Dep. of Crop Science, OAC. (p. 5-11). A good biography of Prof. Zavitz. The first records of the Ontario Agricultural and Experimental Union were in 1886. "At first membership was limited to students and ex-student members of the officers of the College Experimental Farm. C.A. Zavitz was one of the original student members. In 1886, the co-operative experimental testing had only twelve members. By 1888, there were nearly one hundred members. In 1891, there were a total of 2,642 plots planted out and by 1896, over 11,000 packages of seed and fertilizer were sent out to farmers for experimental testing. By 1924 material for experiments had been sent out to more than 100,000 farmers." (p. 9). In the USA, Iowa, Wisconsin, and Ohio organized similar systems, based on the one in Ontario. In 1927 Zavitz retired as head of the Field Husbandry Department.

"Dr. Zavitz was also one of America's pioneer investigators of the usefulness of the soybean crop on this continent. As early as 1893, he procured seed of five varieties of soybeans imported from the state of Kansas. Soon after investigation of the varieties obtained from the state of Kansas, he imported other varieties direct from the Orient. Up until his retirement in 1928, Zavitz continued to study the varieties and cultural practices necessary utilization of soybeans. He selected several varieties and seed of which many were made available to many hundreds of farmers throughout Ontario for tests on their own farms." (p. 10).

Part IV, an appreciation / obituary of Dr. Zavitz, by Prof. Arthur G. Dorland, was first published in the *Canadian Friend* magazine shortly after his death at age 79 in 1942; it was reprinted in the *OAC Review*, Vol. 54. It focuses on his life and work as a Quaker.

This application is to be forwarded to the Secretary-Treasurer, Canadian Agricultural Hall of Fame Association, c/o Royal Agricultural Winter Fair, Coliseum, Exhibition Park, Toronto 2B, Ontario, Canada.

Talk with R. Bruce Hunter, formerly of OAC. 2002. Feb. 3. He started writing this application in 1973, then finished and submitted it in the spring of 1974, before he left for Africa that summer.

Note: In Nov. 1974 Prof. Zavitz was inducted into the Canadian Agricultural Hall of Fame (CAHF). Then in 1999, Prof. Zavitz was awarded an posthumous honorary degree from the University of Guelph–the only posthumous honorary degree ever awarded by the university. CAHF started in 1962, and 172 people have been inducted (as of Dec. 2001). No more than three persons can be inducted per year. Address: Guelph, Ontario, Canada.

1013. Eden Foods. 1974. Spring pricelist. P.O. Box 100, Ann Arbor, MI 48107. 4 p. Effective June 1.

• ***Summary:*** There are many more total products than in the Nov. 1973 catalog. The 8 oz tamari soy sauce and the 3 types of miso (Mugi, Hacho, Kome) in 1-lb packages bear the Erewhon brand after the product name in the catalog, but the pints and gallons of tamari soy sauce and the same 3 types of miso sold in bulk (44 lb tubs) do not bear the Erewhon brand, perhaps indicating that Eden has found a way to go around Erewhon in importing bulk miso. New products include: Kuzu arrowroot. Grade C Korean nori (Roland). Canadian leaf dulse (Atlantic Mariculture). Cicilian olives (Pure & Simple). Barley malt powder. Barley malt syrup. Maple syrup. Bee pollen. Shiu-chu finest preserved Ginseng roots (China). Kirin extra large ginseng roots, red. pres. (China). Ginseng balls *(fo-ti-tieng, dong kwai* [angelica root]). Mao herb (Chinese ephedra). Lemongrass. And many other herbs. Address: Ann Arbor, Michigan. Phone: (313) 769-8444.

1014. Orok, E.J.; Bowland, J.P. 1974. Nigerian cocoa husks and cassava meal as sources of energy for rats fed soybean meal- or peanut meal-supplemented diets. *Canadian J. of Animal Science* 54(2):229-38. June. [12 ref]

• ***Summary:*** Inclusion of cassava meal at 30-50% of the diet gave the best overall rat growth. Cocoa husks, with their theobromine removed and fortified with DL-methionine and L-lysine can also be used efficiently in animal diets fortified with soybean meal. Address: Dep. of Animal Science, Univ. of Alberta, Edmonton, ALB, TG6 2E1, Canada.

1015. *Soybean Digest.*1974. Edible oils background. July. p. 11-13.

• ***Summary:*** Contains detailed information on edible oils and fats worldwide. As of 22 May 1974, soy oil costs 2.8 times as much as it did, on average, in 1972. However the price of every other edible oil and fat has increased about that much and, in some cases much more. Coconut oil is 4.7 times as expensive and palm kernel oil is 5.5 times as expensive. Tables show: (1) World production (in million metric tons) of leading oils and fats. Those with the largest production worldwide are: Soy 23.2%, butter 14.3%, sunflowerseed 11.3%, lard 8.8%, cottonseed 7.7%, groundnut / peanut 7.1%, rapeseed 6.5%. (2) World production and export of soybeans and soy oil (1973-74). The top producers of soybeans are: USA 67.4% of total, China 15.3%, Brazil 11.4%, Argentina 0.9%. Top net exporters of soybeans are: USA 87.2%, Brazil 12.1%. Top next exporters of soy oil are: USA 73.7%, Brazil 21.4%, Argentina 4.7%. (3) World production and export of coconut oil (1973-74). Leaders are Philippines, Indonesia, and West Germany (processor only). (4) World production and export of cottonseed and cottonseed oil (1973-74). Leaders are USA, USSR, and China. (5) World production

and export of sunflowerseed and sunflowerseed oil (1973-74). Leaders are USSR, Argentina, and Rumania. (6) World production and export of rapeseed and rapeseed oil (1973-74). Leaders are India, Canada, and China. (7) World production and export of groundnuts and groundnut oil (1973-74). Leaders are India, China, and USA.

A bar chart shows price increases (%) of edible oils since 22 May 1974.

1016. *Windsor Star (Essex County, Ontario, Canada).*1974. Hopes for soybean plant surface. Aug. 17. p. 7.
• ***Summary:*** "Essex–The first signs of attempts to woo Maple Leaf Mills to locate a $15 million soybean crushing plant in the county emerged Tuesday night. At their regular monthly meeting, the directors of the Essex County Federation of Agriculture [whose president is Peter Epp] decided to encourage the firm to move to the Windsor area. About a month ago, Maple Leaf Mills of Toronto announced it was interested in building a multi-million dollar crushing plant along the waterfront in Sarnia. The company, which is gradually phasing out its Toronto operation because the Ontario government is expropriating the land, owns elevators in Sarnia." Railways, highways, and deep water ports are available in Sarnia. But there is opposition to the proposal because the St. Clair Parkway Commission has plans for expanding a park system along the shoreline. Note: Maple Leaf Mills later decided against buying the Sarnia site.

1017. Lees, David H. 1974. Plant protein–Future for Canada. *Food in Canada*. Aug. p. 29-32. [10 ref]
• ***Summary:*** The writer believes that the production and processing of plant proteins, and products incorporating these proteins, from Canadian grains, oilseeds and legumes, has a very bright future in Canada.

The growth of soy flours, grits, concentrates and isolates in the USA is discussed. A portrait photo shows Dr. Lees. Address: PhD, Food scientist.

1018. Kamm, Henry. 1974. Red Cross teams fight malnutrition in nomads in Niger refugee camps. *New York Times.* Sept. 27. p. 2.
• ***Summary:*** Drought and famine have devastated the region south of the Sahara in Africa. A team of five Europeans and Canadians tries to care for about 20 nomad camps and villages. Those most vulnerable are children, women and nursing mothers. The simplest test for malnutrition in children is measurement of the upper arm circumference. The 5-10% with the worst malnutrition "are put on high-protein diets of corn-soya-milk powder and fishmeal." A map shows the region. A photo shows a group of refugees at a Red Cross camp in Lazare, north of Niamey, Niger. Address: Special to the New York Times.

1019. Gamble, Edwin. 1974. Research techniques in crop science. *Notes on Agriculture: Agricultural Research at the University of Guelph (Canada)* 10:7-8. Sept. *

1020. Carruthers, Jeff. 1974. Ottawa appears baffled, stalling on what to call vegetable wiener. *Globe & Mail (Toronto, ONT, Canada).* Oct. 29. p. 15.
• ***Summary:*** It will be months until an "all-vegetable wiener and other cheaper simulated meat products" are introduced for cost-conscious Canadian consumers, because of "federal Government infighting over naming and labeling these foods-of-the-future.

The Agriculture Department, defending the interests of Canada's meat industry, is opposed to the use of any "traditional" meat names–such as steak, burger, hamburger, wiener, sausage, and the like–for "non-meat or mostly non-meat simulated products." However Agriculture Minister Eugene Whelan said that a name such as "soyabean steak" was acceptable; the advertising could even say that it "tastes like beef."

However the Consumer Affairs Department, with support from the Health Department, has proposed that "the new vegetable protein products be called 'simulated' meat products." The label for a "simulated beefsteak" should state that it contains either "no meat or less meat than the traditional product."

In early 1973, while the regulations were being discussed, "some supermarkets in Eastern Canada introduced 'soyaburger' products (mixtures of real hamburger and soya protein, made to look like hamburger, that sell for less than hamburger)."

At that time, "the federal government decided to allow soyaburger products to be marketed, even though they were not covered by the Food and Drugs Act."

Now, consumers will have to wait. The issue is expected to be resolved before the year's end.

1021. Brown, Lester R.; Eckholm, Erik P. 1974. Our dietary habits: Should they be changed? For what reasons? *Vital Issues* 24(2):104. Oct. [1 ref]
• ***Summary:*** This Vital Issue is drawn from the authors' forthcoming book *By Bread Alone* (Praeger 1974). "Since the time of Malthus, the world food problem has been seen as a food-population problem. Currently population growth continues to generate demand for more food, but, in addition, affluence has emerged as a major claimant on world food resources." It examines the encouraging shift from beef and animal products to vegetable sources of protein, and the economy, ecology, health issues, inefficiency, and waste in beef production. A chart gives per capita meat consumption (including poultry but not fish) for various countries in 1960 and 1972, and the percentage increase during that time as follows (pounds per year): USA (208, 254, +22%), Australia (234, 235, 0%), France (168,

212, 26%), Canada (167, 211, 26%), United Kingdom (158, 171, 8%), West Germany (144, 192, 33%), Sweden (109, 112, 3%), USSR (80, 104, 30%), Italy (70, 136, 94%), Yugoslavia (62, 75, 21%), Spain (51, 96, 88%), Japan (14, 41, 364%). Address: 1. Senior Fellow; 2. Associate Fellow. Both: Overseas Development Council, Washington, DC.

1022. Fan, T.Y.; Sosulski, F.W. 1974. Dispersibility and isolation of proteins from legume flours. *Canadian Institute of Food Science and Technology Journal* 7(4):256-59. Oct. [9 ref. Eng; fre]

• ***Summary:*** Nitrogen extraction and precipitation curves, and yields of protein isolate, were determined for 9 legume flours containing 21-45% protein. "Soybean flour was the best source of protein isolate while lupine and fababean also provided high yields of relatively pure protein isolates.

"Seeds of soybean *(Glycine max)* [and the 8 other legumes]... were obtained from plots at the University of Saskatchewan." On a moisture-free basis, the soybean flour had the second highest protein content (43.5%, after lupine at 44.7%), the highest fat content (23.1%, followed by lupine at 7.9%), the highest fiber content (2.2%, followed by lima bean at 2.1%), the highest ash content (4.8%, followed by pea bean at 4.0), and the highest yield of protein isolate (36.6 gm per 100 gm flour, followed by lupine at 30.8 gm). Address: Dep. of Crop Science, Univ. of Saskatchewan, Saskatoon, SASK, S7N 0W0, Canada.

1023. Ford, Frank. 1974. Pack to nature: Nutrition made easy in the home or in the woods. Fort Worth, Texas: Harvest Press. vii + 157 p. Introduction by Roger Hillyard. Index. Oct. 18 cm. [13* ref]

• ***Summary:*** This book, containing over 250 recipes, describes how to use whole, natural food staples in quick, easy to prepare dishes. By Sept. 1976 this book had become *The Simpler Life Cookbook from Arrowhead Mills.*

In the introduction, Roger Hillyard (writing in Oct. 1974 from Soquel, California) recalls that in late February of 1969, he and his wife and daughter were returning to Boston from California. They stopped in the small Texas town of Hereford to visit Deaf Smith County and the company that was supplying food to a growing number of natural foods followers and devotees–including Erewhon. Four years later they spent a year in Hereford working with Frank Ford and Arrowhead Mills. "During the five years I have worked with, lived with, and been friends with Frank, I have witnessed one of the most dramatic and beautiful personal unfoldings. Frank never wore that robe of self-righteousness, and he helped me to exchange mine for something more embracing."

Soy-related recipes include: Quick soy pancakes (with soy flour, p. 35). Soybean salad (with cooked soy flakes, p. 43). Quick tamari orange salad dressing (with tamari soy sauce, p. 47). Paul's salad dressing (with tamari, p. 47). Soybean chili (with dry soybeans and "tamari soysauce," p. 54). Sprout soup (with 2 cups fresh soybean sprouts, p. 54). Sprouted lentil soup (with soy flour, p. 55). Squash stew (with soy flakes, p. 55). Tamari bouillon (p. 56). Vegetable-soy-sesame soup (with soy flakes, p. 59). Basic soybeans (p. 74). Basic soy flakes (p. 75). Basic bulghur-soy grits (p. 75). Lentil soy loaf (with cooked soybeans or soybean flakes, p. 84). Soy & mushroom loaf (with soy flakes, p. 85). Soy patties (with soy flakes, p. 87). Stuffed peppers (with soy flakes, p. 87). Soyflake & tahini spread (with soy flakes, p. 106).

A 2-page directory titled "Some Natural Foods Sources" (p. 153-54) lists 30 of the natural food industry's pioneers, including Akin Distributors, Inc. (Tulsa, Oklahoma), Arrowhead Mills, Inc. (Hereford, Texas), Basic Needs (Grand Prairie, Texas), Cinagro Distributors, Inc. (Atlanta, Georgia), Cliffrose (Longmont, Colorado), Collegedale Distributors, (Collegedale, Tennessee), The Concord (Snowflake, Arizona), Deer Valley Farms (Guilford, New York), Eden Organic Foods (Ann Arbor, Michigan), Erewhon Trading Company (33 Farnsworth St., Boston, Massachusetts 02210, and 8454 Steller Dr., Culver City, California 90320), Food for Health (Phoenix, Arizona), Food for Life (Elmhurst, Illinois), Good Food People (Austin, Texas), Great Plains Distributors (Kansas City, Missouri), Happy Health Products (Miami, Florida), Janus (Seattle, Washington), Laurelbrook Foods (Bel Air, Maryland), Lifestream Natural Foods (Vancouver, BC, Canada; Ratana and Arran Stephens), Mottel Health Foods (New York, NY), Naturally Good Foods (Hereford, Texas), Nu-Vita Foods Inc. (Portland, Oregon), Organic Foods & Gardens (City of Commerce, California), Shadowfax (Binghamton, New York), Shiloh Farms (Sulphur Springs, Arkansas), Taiyo, Inc. (Honolulu, Hawaii), Tree of Life (St. Augustine, Florida), Vim & Vigor (Honolulu, Hawaii), The Well (San Jose, California), Walnut Acres Inc. (Penns Creek, Pennsylvania).

A small photo on the rear cover shows Frank Ford out hiking, wearing a backpack.

Note: This is the earliest published document seen (Feb. 2010) concerning Lifestream Natural Foods (Vancouver, BC, Canada). Address: Deaf Smith County, Texas.

1024. *Soybean Digest.*1974. The international outlook of the soybean market. Oct. p. 8-10.

• ***Summary:*** Contents: Introduction. Western Europe. Italy (Ferruzzi). Japan. Taiwan and Korea. Latin America.

"Italy: ASA's [American Soybean Assoc.] already made a solid start in expanding soy oil prospects in Europe with an identified soy oil campaign now in its second year in Italy. Watts calls the agreement with Ferruzzi and Company the one outstanding market development activity carried out in Europe recently.

"'Di Soia Si Vivra' (with soy we live), Italian housewives heard again and again during the advertising campaign. And soy oil sold. 'After 7 months, over 50% of the Ferruzzi production at his two plants was identified soy oil. After 12 months, 96% of it was identified soy,' Watts says. 'In the 12 months of the campaign about 20 million lbs. of soy oil were sold to the Italian people.'

"A major competitor began a similar campaign on its own only a few weeks after Ferruzzi started his promotion effort. 'Now, at least 11 brands of soy oil are on the shelves in Italy,' reports Watts."

Note: This is the earliest document seen (April 2007) concerning the work of Ferruzzi and Co. with soybeans.

A pie chart shows 1974-75 soybean sales commitments: EEC 45%, other Western Europe 6.1%, Japan 21.9%, China 4%, other 4%, undesignated 19.5%.

Tables show: (1) U.S. soybean exports (July to June fiscal year basis) for two years (1972-73, and 1973-74) in quantity (million bushels) and value (million dollars) to: EEC, Spain, Canada, Israel, Japan, Soviet Union, China, Taiwan, unidentified (transshipments), other. (2) U.S. soybean meal exports; the five biggest buyers are West Germany, Japan, Italy, Netherlands, and Poland-Danzig. (3) U.S. soy oil exports; the five biggest buyers are Pakistan, Peru, Mexico, Canada, and Yugoslavia.

1025. Charles Ambrose Zavitz 1863-1942. 1974. Guelph, Ontario, Canada. 1 p. 28 cm.
• ***Summary:*** The follow citation was read when he was inducted into the Canadian Agricultural Hall of Fame on 17 November 1974: "Charles A. Zavitz was a member of the first class to graduate from the Ontario Agricultural College with the degree of Bachelor of Science of Agriculture (1888). During the next 41 years, while serving on the staff of the Field Husbandry Department of his Alma Mater, he displayed remarkable qualities of leadership in the fields of research, teaching and extension.

"Being an avid researcher, he attempted to develop many new varieties of field crops, but steadfastly refused to release any until proven by careful testing to be suitable to Canadian conditions. Undoubtedly, his most widely acclaimed new variety was O.A.C. No. 21 Barley, one that has stood the test of time.

"Professor Zavitz was one of the founders of the Canadian Seed Growers' Association, and a strong supporter for the Ontario Agricultural and Experimental Union. He use the members of the latter organization quite extensively to obtain wider distribution of varieties that had proven superior as a result of tests conducted under his supervision and, in so doing, added millions of dollars annually to the value of Ontario's field crops.

"Although primarily recognized for his work with cereals, Professor Zavitz made valuable contributions to the improvements of other field crops, notably alfalfa, potatoes, and soy beans.

"In appreciation of his achievements, the University of Toronto conferred the degree of Doctor of Science on him in 1916 and in 1935, following his retirement, he was the recipient of an Honourary Doctor of Laws degree from the University of Western Ontario as a tribute to his status as a distinguished son of that area of the Province.

*"Nominated by the Canadian Seed Growers' Association and the Ontario Pedigreed Seed Section– 1974."*

Note: Talk with R. Bruce Hunter of OAC and Ceiba-Geigy. 2002. Feb. 3. 1974 was the 100th anniversary of OAC and Charles Zavitz's induction was coordinated with that event. Bruce wrote the application. Address: Guelph, Ontario, Canada.

1026. Predicasts, Inc. 1974. World manufactured soybean foods. Special Study No. 108. Predicasts, Inc., 200 University Circle Research Center, 11001 Cedar Ave., Cleveland, OH 44106. vi + 93 p. Dec. 24. No index. 28 cm. Research Analyst: Frederick M. Ross.
• ***Summary:*** Contents: 1. Introduction. 2. Summary. 3. Economics of Soybean Foods: Soybeans, soy flour, meat extenders (based on extruded textured soy flour), synthetic meat (based on spun isolates). 4. Industry structure: General, $1,000 million food and feed giants (ADM, Cargill, Central Soya, General Mills/Takeda Chemical, Nabisco, Ralston Purina/Fuji Oil, and Esmark [Swift]), other major manufactured soy food companies (Unilever, General Host [New York], Miles Laboratories/Worthington & Kyowa Hakko Kogyo, A.E. Staley Mfg. Co., Stange [Chicago, Illinois], Chambers & Fargus [Humberside, England]), food industry structure. 5. Demand for manufactured soybean products: Demand for meat & substitutes, supply of natural meat, demand for meat substitutes, demand for soy flour. 6. North America: United States, Canada. 7. Latin America: General, Argentina, Brazil, Mexico, Other Latin America (Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay). 8. West Europe: General, France, West Germany, Italy, Spain, United Kingdom, Other West Europe. 9. East Europe: General, Hungary, Poland, USSR, Other East Europe. 10. Africa: General, Egypt, Nigeria, South Africa, Other Africa & Mideast. 11. Asia: General, China, India, Indonesia, Japan, Pakistan, Other Asia. 12. Oceania: Australia, New Zealand, Other Oceania.

Most sections contain numerous tables, mostly on meat and meat substitute consumption, and raw protein consumption, by country. Address: 200 University Circle Research Center, 11001 Cedar Ave., Cleveland, Ohio 44106. Phone: 216-795-3000.

1027. Joplin, C.E. 1974. Pulse crops of the world and their important insect pests. MSc thesis, Simon Fraser University, British Columbia, Canada. 134 p. *
Address: Canada.

1028. Martel, P.; Hudon, M. 1974. The insects affecting kitchen gardens in the southwest of Quebec, Canada, in 1973. *Annales de la Societe Entomologique du Quebec* 19(3):110-12. *
• ***Summary:*** The soybean is one of the plants discussed.

1029. **Product Name:** Supro 620.
**Manufacturer's Name:** Stange Canada.
**Manufacturer's Address:** Mississauga, ONT, Canada.
**Date of Introduction:** 1974.
**New Product–Documentation:** Predicasts. 1974. World Manufactured Soybean Foods. p. 13. "Stange (Chicago, Illinois) is one of the world's largest spice and food manufacturers with 1973 sales of $36 million. The firm, through Stange Canada, operates a plant in Mississauga, Ontario, that makes 'Supro 620' soy protein isolate, a very high grade protein ingredient for health foods, instant breakfasts, puddings and other specialty foods. The soy isolate is sold to large food manufacturers throughout North America for inclusion in their retail food products." Note: This product was apparently later purchased by Ralston Purina.

1030. Gibbs, Ronald Darnley. 1974. Chemotaxonomy of flowering plants. 4 vols. Montreal, Canada: McGill-Queen's University Press. Illust. 24 cm. *
• ***Summary:*** Vol. 1. Constituents. Vol. 2. Families. Vol. 3. Orders. Vol. 4. Bibliography, index.

1031. Hulse, J.H. 1974. Protein enrichment of bread and baked products. In: A.M. Altschul, ed. 1974. New Protein Foods. Vol. 1A. Technology. New York: Academic Press. 511 p. See p. 155-229. Chap. 4. [254 ref]
Address: Agriculture, Food, and Nutrition Sciences, International Development Research Center, Ottawa, Canada.

1032. Newman, Marcea. 1974. The sweet life: Marcea Newman's natural-food dessert book. Boston, Massachusetts: Houghton Mifflin Co. 161 p. Illust. by Linda Stine. Index. 29 cm. A 1981 revised edition contained 176 p. [63* ref]
• ***Summary:*** This early and beautifully presented natural foods cookbook contains very innovative and tasty tofu dessert recipes made with limited natural sweeteners and no dairy products. It discusses the harmful effects of refined and denatured foods, with details on white flour, sugar, oil, salt, eggs, milk, and baking powder [which contains alum, a product of aluminum; "it may even be harmful"].

Chapter 1, titled "Natural necessities: Equipment, techniques, and ingredients," gives good definitions of and introductions to amasake (p. 6), miso (p. 10), tamari (p. 12), and tofu (soybean cheese, p. 13). Soy-related recipes include: Basic cake II with tofu sour creame (p. 25). Cheesecake tofu pie (p. 37). Cantaloupe cheesecake (p. 37, with tofu). Upside-down tofu cake (p. 38). Mincemeat filling with miso (p. 50-51). Tofu poppy seed filling (for pastries or phylo, p. 53). Instant tofu creame (p. 59). Tofu creame (p. 59). Tofu creame whip (p. 60). Tofu sour creame I and II (p. 60). Tofu custard (p. 62). Apple tofu delight (p. 82). Creame puffs with amasake filling (p. 82). Cherry tofu strudel (p. 88). Tofu sour creame cherry tart (p. 92). Thanksgiving squash-mincemeat pie (with miso in the filling, p. 98-99).

The inside dust jacket gives a brief biography of the author, who was born and raised in New York. In Berkeley, California, she studied Japanese and natural-food cooking, and helped to start a "noodle bar" where she baked her first dessert. Now she lives in Boston and caters weddings, parties and school fairs with natural and organic foods and desserts.

An Appendix (p. 151-52) lists the name and address of 39 suppliers of natural foods in the USA (divided by region), and 2 in Canada. This list includes the following companies: Erewhon Trading Co. (33 Farnsworth St., Boston, Massachusetts 02210), Good Nature Distributing Co. (Box 447, Export, Pennsylvania 15632), Infinity Co. (173 Duane Ave., New York, NY 10005), Shadowfax (25 N. Depot St., Binghamton, NY 13901), Sundance Organic Food (R.D. #1, Box 146A, Coventry, Connecticut 06238), Walnut Acres (Penns Creek, Pennsylvania 17862; founded by Paul Keene), Collegedale Distributors (Box 492, Collegedale, Tennessee 37315), Laurelbrook Foods (Box 47, Bel Air, Maryland 21014), Tree of Life (Box 1391, St. Augustine, Florida 32084), Ceres, Inc. (2582 Durango Dr., Colorado Springs. Colorado 80910), Cliffrose (129 Coffman St., Longmont, Colorado 80501), Eden Foods (Box 100, Ann Arbor, Michigan 48107), Food for Life (420 Wrightwood St., Elmhurst, Illinois 60126), Akin Distributors (Box 2747, Tulsa, Oklahoma 74101), Arrowhead Mills (Box 866, Hereford, Texas 79045), Shiloh Farms (Box 97, Sulphur Springs, Arizona 72768), Sunrise Distributors (Box 5216, Phoenix, Arizona 83010), Erewhon Trading Co. (8454 Steller Dr., Culver City, California 90230), Janus Natural Foods (1523 Airport Way, South, Seattle, Washington 98134), New Day Distributors (1242 S. Berendo St., Los Angeles, CA 90006), The Well/Pure & Simple (795 West Hedding St., San Jose, CA 95126), Lifestream Natural Foods, Ltd. (724-26 W. 6th Ave., Vancouver 9, BC, Canada), and Natural Foodstuffs (1 Main St., Box 27, Sutton, Quebec, Canada).

Note: This book contains the earliest recipe seen (Dec. 2005) for a tofu cheesecake. It is also the earliest English-

language document seen (Dec. 2005) that uses the term "cheesecake tofu pie" to refer to a tofu cheesecake. For the story of how Marcea got interested in tofu and wrote this book see: Marcea Newman. 1994. Oct. Re: Early work with tofu and tofu cheesecakes in America. Address: Boston, Massachusetts.

1033. Ontario Soya-Bean Growers' Marketing Board. 1974. 25th anniversary, 1949-1974. Box 1199, Chatham, ONT N7M 5L8, Canada. 32 p. 24 cm.
• ***Summary:*** Contents: A mark in time (History of soybeans in Ontario). For each year from 1949 to the present, a summary of the year's major events and activities related to the board and to soybeans, a photo of the chairman of the board with the names of the directors from the 6 districts: Elgin, Essex, Pelee Island, Kent, Lambton, and Middlesex. Elected county committeemen in 1974 from the 6 districts. Soybean variety development through the years. Extension programs beneficial to all. Table: Estimated acreage and total production of Ontario soybeans–1973 (Total Ontario soybean production in 1973: 14,753,000 bushels from 475,200 acres. Leading counties: Kent 5,348,000 bu. Essex 4,234,000 bu. Lambton 3,383,000).

Examples of some early history: 1949–"The first board. Provisions under the newly created soybean marketing plan regulations specified eleven directors to represent some 6,000 soybean growers in six districts. John H. Wilcox is chairman. The first office of the board was located in the office of the Ag. Rep. in Essex, and Angus McKinney was the first secretary. K.A. Standing acted as assistant on a part-time basis. Board operations were financed during the 1949-1950 crop year by a one-half cent per bushel license fee." In 1950, the license fee was increased from one-half cent to one cent per bushel, the level at which it remained until 1959. In 1960 the license fee was reduced by the board from one cent to one-half cent per bushel.

1951–The first annual convention of soybean growers was held February 15-16, 1951 at Community Hall, Chatham. Canadian soybean acreage in 1951 reached a high of 155,000 with an average yield of 24.8 bushels per acre. Production was a record 3.8 million bushels, while soybean imports from the USA were about 5 million bushels per year.

1952–K.A. Standing was appointed full-time secretary-manager, and in 1973 he became general manager of the soybean and wheat boards. In 1952 the board established its office in Chatham, Ontario, sharing facilities and staff of one secretary with the Ontario Seed Corn Marketing Board on Market Street. Expansion of office requirements resulted in a move to new quarters on Fourth Street in 1953.

1954–The Ontario Soya-Bean Growers' Marketing Board organized the first export of Canadian soybeans in 1954. The shipment was made from Port Stanley to interests in the United Kingdom. Initiated to generate competition in the domestic market, exports were to continue in every succeeding year. Some 1,492,000 bushels were exported during the 1954-55 crop year.

1958–This year the board was successful in having soybeans brought under the Agricultural Stabilization Act. The crop was supported at $2.10 per bushel. The average price to growers was $1.90, resulting in a deficiency payment of 19.6 cents per bushel for a total of $1,200,000 paid to soybean growers. Also in 1958 the office was moved from Fourth Street to Wellington Street West. Joint office and staff arrangements were made with the newly established Ontario Wheat Board, and Otis McGregor was appointed assistant secretary-manager.

Licensed varieties developed at both Canada and Ontario government research stations are: A.K. (Harrow) (licensed in 1931-33), Mandarin (1934), Harman (1944), Capital (1944), Harly (1948), Blackhawk (1950), Harosoy (1951), Hardome (1953), Acme (1953), Comet (1953), Crest (1957), Merit (1959), Harosoy 63 (1962), Chippewa 64 (1964), Vansoy (1970), Harwood (1970), Amsoy (1971), Wells (1972), Steele (1972), XK 505 (1973), Evans M61-96 (1974), Harlon OX 643 (1974). Address: Chatham, ONT, Canada. Phone: 519-352-7730.

1034. Orok, Etim Jonathan; Rowland, J.P. 1974. Comparison of Nigerian yellow corn, guinea corn (sorghum) and peanut meal (groundnut cake) with Canadian corn and soybean meal. *Canadian J. of Animal Science* 54(2):217-28. Based on Orok's PhD thesis, University of Alberta, Canada. [Eng; fre]
Address: Dep. of Animal Science, Univ. of Alberta, Edmonton, AB T6G 2E1, Canada.

1035. Radley, R.W. 1974. Soya bean adaptation to the cool, maritime climates of Northern Europe, with special reference to the U.K. *Outlook on Agriculture* 8(1):3-9. [15 ref]
• ***Summary:*** "Sharp increases in soya bean prices, and restrictions on US exports, have stimulated interest in the possibility of growing this crop in NW Europe. The principal limitations are temperature–especially at night–and daylength. One variety has often yielded well, experimentally, in Southern England, but in general yields are at present too uncertain and the lowest pods too near the ground. Development of better-adapted varieties would call for substantially increased research effort."

Table 1 shows that during the period 1961-70 the UK imported about US$50 million worth of soybeans and soybean products each year. Imports of whole soybeans decreased from a peak of 294,000 tonnes in 1964 to only 38,000 tonnes in 1970–worth $6.2 million. Imports of soya oil rose from 18,000 tonnes in 1961 to 61,000 tonnes in 1970 (worth $17.2 million) and imports of soya cake and meal rose from 142,000 tonnes in 1961 to 248,000 tonnes in

1970 (worth $28.5 million). A shortfall in Peruvian fishmeal from March 1972 onwards increased the demand for soybeans and soy products.

Production of soybeans in Europe is largely confined to Romania, Bulgaria, and Yugoslavia which together in 1972 produced no more than 188,000 tonnes on about 169,000 ha (average yield = 1.11 tonnes/ha). The location and extent of soybean production in Japan is of real significance for northern European countries. Japan cultivates about 90,000 ha/year of soybeans, largely on the northernmost island of Hokkaido, which, as Sven Holmberg (1956) writes "is the only country in the world where soya beans are grown as a major crop in a relatively cool and partly marine climate."

In 1973 Dr. E.S. Bunting of the Plant Breeding Institute, Cambridge, sowed several varieties of soybeans at Oxford; these included Fiskeby V (bred by Algot Holmberg & Soner A B in Sweden), Altona (the earliest of the varieties commercially available in Canada), and two Russian varieties grown in Eastern Siberia–Saliut 216 and Amurskaja 41 (both reputed to be cold-tolerant). Fiskeby 5 gave the best grain yields. Also on 21 May 1973 the author planted 110 varieties of soybeans (including Fiskeby V) at Silsoe, Bedfordshire, and showed how critical the planting date is in terms of germination. In 1974 Summerfield conducted controlled environment studies at Reading University.

"Eleven year (1960-70) growth and yield data for Fiskeby V grown at Norrköping, Sweden (latitude 58º 36'N), supplied to Bunting (1973, private communication) by Holmberg, indicate that the variety requires a 'heat-sum' of approximately 825 degree-days above 0ºC to bring about flowering and between 1,880 and 2,000 degree-days for completion of its growth cycle. The mean number of days from planting to harvest in the eleven year period was 133 but, perhaps more important, the range was from 115 to 165, reflecting to some extent the seasonal variation in temperature... (see also Holmberg 1956)."

"Fiskeby V would appear to be the only variety worthy of serious consideration in Britain at the present time... [but] for the crop to be a contender for a place in British agriculture, the variety will need further improvement through breeding."

"The real question is whether or not there is sufficient evidence at this stage for a higher level of research resources to be channelled into the crop." Address: National College of Agricultural Engineering, Silsoe, Bedford, England.

1036. Ross, Alexander M. 1974. The college on the hill: A history of the Ontario Agricultural College 1874-1974. Toronto, Ontario, Canada: Copp Clark Publishing. x + 180 p. Illust. Index. 22 x 29 cm. [279* ref]

• ***Summary:*** The contributions of C.A. Zavitz are well documented. In 1874 the college opened with 28 students. In 1877 the first diplomas were granted. In 1879, when James Mills became principal, 89 new freshman entered and the total attendance was 162.

In 1880 (by an act of incorporation) the School of Agriculture and Experimental Farm became the Ontario Agricultural College (OAC) and Experimental Farm, presided over by a president (James Mills), not a principal (p. 35). The Toronto *Globe* mocked the idea that a college was needed to teach practical-minded farmers or to confer degrees in agriculture. A course was established which would grant the degree of Bachelor of Science in Agriculture. By June 1888 the OAC had become affiliated with the University of Toronto. "At a special convocation at the University of Toronto on 1 October 1888, five third-year graduates from the College received their degrees. These men were J.A. Craig, G.C. Creelman, J.J. Fee, B.E. Paterson, and C.A. Zavitz." These were the first degrees granted by OAC. Before the end of the year Zavitz had become Assistant Superintendent of Experiments and Assistant Chemist at the Ontario Agricultural College.

In 1890 C.A. Zavitz, the newly appointed director of experiments, drew the attention of President Mills to the pressing need for an experimental station building, "where work could be accomplished during the winter months..." The two-story building was finally provided by the Ontario government in 1895 (p. 33).

Under Thomas Shaw the experimental plots grew more numerous each year. Much of Shaw's success was due to the work of his Assistant Superintendent of Experiments, the young Charles Zavitz (p. 45). President Mills recognized the capabilities and talents of Zavitz. "In his annual report for 1894 Mills drew Zavitz' work to the attention of the government by noting the growth in the number of plots used in experimental work: from 56 in 1889 to 1,705 in 1894. The President also pointed out that from 1890 to 1894 the Experimental Department had distributed over 23,000 packages of choice grain throughout Ontario."

In 1886 the members of the Ontario Agricultural and Experimental Union started the first cooperative experimental work on their own farms; most of the members were former graduates of OAC. "The spirit behind the Union drew its strength from the tireless energy of the Quaker, Charles Zavitz, whose interest in testing and developing different varieties of grains was to mean so much to the agricultural economy of Ontario. Zavitz was a scientist of his dat, a man endowed with remarkable ability to systematize his knowledge. He was painstakingly fastidious about his experimental work as well as imaginative and humble. But, he was a man born too soon, too early absorbed by the practical forces which insisted on immediate profits for rural Ontario" (p. 49-50).

In 1893 Zavitz and his helper Whiteside prepared an outstanding exhibit for the World's Columbian Exposition at Chicago, Illinois; it was widely reported in both American

and Canadian journals. In 1899 C.A. Zavitz attracted the attention of newspapers and visitors at the Industrial Fair in Toronto with his display of 160 varieties of wheat, and 80 varieties each of oats and barley. Ontario farmers were now enjoying the advantages of Zavitz' experimentation (p. 49).

The *O.A.C. Review* began publication in Nov. 1889; it was named by C.A. Zavitz. For more than 60 years it was published by OAC students, and it linked them with past graduates and faculty as one large family (p. 69).

The intensely religious orientation of faculty members like Mills and Zavitz "gave a strong nonconformist cast to religious life on campus." Many of the students had been raised in an atmosphere of "puritanical fundamentalism." Thus, the theories of Darwin and Huxley were earnestly discussed (p. 70).

Ever since the College was organized, the Professor of Agriculture had complete charge of the experimental farm, as well as instruction in field husbandry and live stock. But since the science of Agriculture has made great advances in the past few years, specialists are required to take charge of certain branches of the work. In 1903 Prof. C.A. Zavitz, the Experimentalist, was given a new branch of work, to be known as the Department of Field Husbandry. In 1904 his cousin, E.J. Zavitz, was put in charge of OAC's new Department of Forestry (p. 76).

In 1914 three new buildings were constructed on campus; one of these, the Field Husbandry Building, was later renamed Zavitz Hall. President Creelman was fortunate to have C.A. Zavitz on his faculty (p. 78).

In the *O.A.C. Annual Report* of 1911 C.A. Zavitz discussed the results of his tests with many grains, including the "Early Yellow Soy Bean, a legume which Zavitz may have grown for the first time in Canada in 1893. Although his methods may seem old-fashioned today, C.A. Zavitz's careful experimental work notably benefited Ontario agriculture, and placed Field Husbandry in the forefront of the O.A.C. departments" (p. 81).

At the outbreak of World War II, in the absence of President Creelman, Prof. C.A. Zavitz, a Quaker and a pacifist, was appointed Acting President during the fall of 1914. He opposed "setting up a military organization on campus, arguing that students could best support the war effort by devoting their energies to increasing the food supply of the country." The furore in the Guelph newspapers was immediate, yet he had support and was able to continue as Acting President until Dr. Creelman's return from an overseas tour (he was advising New Zealand on agricultural policies) in early 1915 (p. 88).

In June 1927 Dr. Zavitz, the "much respected Head of the Department of Field Husbandry," who had served OAC with distinction for 39 years, retired because of poor health. Prof. W.J. Squirrell succeeded him as head of the department (p. 104). Dr. Zavitz used to point to increased grain yields as justification for the costs of his experimentation (p. 114). Dr. Zavitz was the "grand old man" of field husbandry research at OAC. Soybeans and corn are discussed (p. 133). In 1921 Dr. Zavitz described the purpose of a Provincial Alumni Association; it was "to be an agency capable of rendering inestimable service to the agriculturists of the Province" (p. 157-58). Address: Head, English Dep., OAC, Guelph, Ontario, Canada.

1037. Mother Nature's Inn. 1974? Our menu. 1813 West 4th Ave., Vancouver, BC, Canada. 4 p. Undated.

• ***Summary:*** Contents: [Basics]: Soup of the day, Brown rice, Mother Nature's bread or sprouted 8 grain, Tahini, soy lecithin or vegie butter, Chapatti–whole wheat flatbread of India (buttered or with vegie butter), Sprouted 7 grain English muffin (buttered or with tahini or vegie butter), Bible bread with any spread. Fresh salads (incl. alfalfa sprouts or Tabouli salad). Salad dressings (incl. sesame tahini dressing).

Mom's great sandwiches, Daily special, Evening dinner menu (as posted on menu board) or Golden Lotus Macroplate.

Chapizza, Vegeburger (with vegetable protein patty). Desserts. Juices. Teas (incl. Healthy coffee, Roastaroma, Mu, Red Zinger). At the bottom of page 3: "All food served by Mother Nature's Inn are purely vegetarian and natural, We use neither eggs, sugar, nor cheese with animal rennet. Our fare is lovingly prepared from the freshest, highest quality produce available.

"May the long time sun shine upon you
All love surround you
And the pure light within you
Guide your way home."

On the rear cover is a large oval illustration of a child [Jesus] dressed in a long white road, leading a sheep, a lion and two cows. Around that, the name of the restaurant. Below: Its hours (Mon.–Sat. 11:30 am–5 pm, Sunday 12-7) and address.

Accompanying this menu is a photo (angled upwards) of a waitress at Mother Nature's Inn (Lisa) holding out a plate of food in her right hand; behind her are a hanging light, hanging plant, and the restaurant's ceiling. Address: Vancouver, BC, Canada. Phone: 733-5528.

1038. Ontario Soya-Bean Growers' Marketing Board. 1974? Ontario soybeans: Meeting the challenge of tomorrow (Leaflet). Chatham, Ontario, Canada. 6 panels. Undated. 22 x 9 cm.

• ***Summary:*** Contents: Title page. Basic description of soybeans, soybean oil, and meal. World production. Here in Ontario, a 54 million dollar crop. A very important commodity to the economy. Imports of soybeans, oil and meal for 1972-73 (quantity and value). Margarine. Shortening. Cooking and salad oils. Meal. Flour. Diagram of soybean utilization.

"In Canada, 95% of the production is confined to Southern Ontario where a record 13.8 million bushels were produced in 1972. Prior to World War II, soybean acreage in Ontario ranged in the area of some 30,000 acres. New varieties of soybeans and improved production techniques have contributed to acreage expansion." Address: Box 668, Chatham, ONT N7M 5K8, Canada.

1039. deMan, J.M.; Stanley, D.W.; Rasper, R. 1975. Composition of Ontario soybeans and soymilk. *Canadian Institute of Food Science and Technology Journal* 8(1):1-8. Jan. [4 ref. Eng; fre]
• ***Summary:*** Samples of 55 varieties Ontario-grown soybeans were analyzed. All samples were made into soymilk and the composition of the milk was determined, including the content of phosphorus, calcium, and magnesium. The soymilk was subjected to ultrafiltration and the diffusate analyzed for soluble constituents. "Correlations of variables indicated that an increased protein level in the soybeans was accompanied by a decrease in fat." Sucrose was the predominant sugar; certain varieties were found to have a very low content of raffinose and stachyose, the oligosaccharides that cause flatulence. On average, 63.5% of the calcium in the soybeans was recovered in the soymilk. The soymilk from the 55 samples had the following mean composition: total solids 5.98%, protein 2.71% (3.64% maximum), fat 1.24% (0.72% minimum), soluble solids 2.03%, calcium 9.87 mg/100 ml (13.0 mg max.), protein recovery 72.69% (94.1% max., i.e. the percentage of protein in the soybeans that was recovered in the soymilk). Address: 1. Dep. of Food Science, Univ. of Guelph, Guelph, ONT (Biz 1985: Food Technology Services, 58 Applewood Cres., Guelph, ONT N1H 6B5). Phone: 519-821-3436.

1040. deMan, J.M.; Tanaka, M.; Stanley, D.W. 1975. Coagulation properties of soybean milk. *Canadian Institute of Food Science and Technology Journal* 8(1):9-11. Jan. [4 ref. Eng; fre]
• ***Summary:*** The coagulation properties of 55 samples of soybean milk coagulated with calcium sulfate were investigated. Clotting time was generally in the range of 10-50 seconds. "Clotting time decreased with the age of the soymilk. Addition of phosphates and citrate prolonged the clotting times. All samples produced a firm gel, even when the soymilk was three days old." Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT, Canada N1G 2W1.

1041. Carroll, K.K.; Hamilton, R.M.G. 1975. Effects of dietary protein and carbohydrate on plasma cholesterol levels in relation to atherosclerosis. *J. of Food Science* 40(1):18-23. Jan/Feb. Symposium: Nutritional Perspectives and Atherosclerosis. [73 ref]
Address: Dep. of Biochemistry, Univ. of Western Ontario, London, ONT, Canada.

1042. Odell, A.D. 1975. Meat extension–amended regulations: Summary-overview (Leaflet). Montreal, Quebec, Canada. 1 p. 28 cm. [1 ref]
• ***Summary:*** "On February 12, 1975, historic and commendable amendments to the Food and Drug Regulations were published in the Canada Gazette, which deal with meat and poultry products, meat and poultry extenders, extended meat and poultry products and meatless simulated meats. These are detailed in Schedule No. 291 (pages 208-217) with respect to composition and quality. Schedule No. 280 (pages 226-232) deals with labelling requirements and permissible claims for these products." Address: Vice President–Technical Director, Industrial Grain Products Ltd., P.O. Box 6089, Montreal, Quebec H3C 3H1, Canada. Phone: 514-866-7961.

1043. Sanderson, J.B. 1975. Soybeans–Soybean variety testing. *Research Station Charlottetown, P.E.I., Research Summary* For the year 1974. See p. 28. (Agriculture Canada Research Branch).
• ***Summary:*** "Soybeans yielded up to 2,800 pounds of seed [at 15% moisture] and 1,050 pounds of protein per acre. Twelve varieties of soybeans were evaluated at Charlottetown in 1974. The varieties were seeded on June 3 in four rows, 14 inches (35 cm) apart... Five varieties, 070-16, Solut-216, Altona 070-6 and 070-3 matured before the frost... As indicated by the moisture content at harvest [15%], all varieties required additional drying. Of the licensed varieties, Altona had the best combination of maturity and seed yield. The unlicensed variety 070-16 shows promise." Address: Prince Edward Island, Canada.

1044. Japan Food Corporation. 1975. Kikkoman soy sauce: Now available at most supermarkets (If not, please ask them to stock.) (Ad). *Toronto Star (Ontario, Canada).* March 19. p. E2, E4.
• ***Summary:*** These are two tiny ads on two separate pages of this issue of the newspaper. On the left side of each ad is an illustration of a bottle of Kikkoman soy sauce. The name of the advertiser is not given.

The first ad contains only the text shown above.

The text of the second ad reads: "Kikkoman soy sauce. Low in calories. High in proteins."

Note: This is the earliest document seen that mentions "Kikkoman" in the Toronto Star. Address: Toronto, Canada.

1045. Japan Food Corporation. 1975. Kikkoman sauce: Now available at most supermarkets (If not, please ask them to stock.) (Ad). *Toronto Star (Ontario, Canada).* April 2. p. E3.

• ***Summary:*** "Here are six good reasons why: Possibly the most rewarding flavour discovery you will ever make. No hydrolized protein, no corn syrup, no caramel, no artificial flavour or colour. Just brewed naturally for 12 months. Brewed purely of select quality soy beans, wheat, salt & water (nothing else) [except koji starter culture]. Recommended by Good Housekeeping. Winner of 30 major international awards for quality, taste and excellency. And you'll like it.

"Send one Kikkoman label by scraping off any portion and 25 cents for your Kikkoman 'Ikebana' and recipe ideas (The label is well pasted)."

An illustration shows a bottle of Kikkoman soy sauce.

Note: The title of the ad calls the product "Kikkoman sauce," not "Kikkoman soy sauce." Address: 25-6 Connell Court, Toronto, M8Z 1E8 Canada. Phone: (416) 252-5728.

1046. Rothschild, Emma. 1975. A reporter at large [The world food economy and the 1974 World Food Conference near Rome, Italy]. *New Yorker.* May 26. p. 40-44, 49-50, 52, 54, 56, 58, 62-66, 68-70, 72-73, 76. See p. 50, col. 3.
• ***Summary:*** The world is in the midst of a food crisis. To many it seems to be a result of drought and natural disaster. But actually is a "sign of lasting insecurity in the world food economy. It is political and economic, and it could have been avoided." As with petroleum problems, it has been "caused by the decisions and policies of people and governments."

The World Food Conference, convened in November 1974, brought together more than 5,000 delegates including many high government officials. From the USA: Henry Kissinger (secretary of state), Earl Butz (secretary of agriculture), and Dr. Don Paarlberg (chief economist at the USDA). The Flanigan Report tried to analyze the world food crisis. William R. Pearce, a vice-president of Cargill, Inc., "said that in the nineteen-sixties the United States 'had excess capacity in corn and soybeans,' and therefore set out to encourage the development of a different diet pattern around the world.'" It encouraged the use of feed grains in meat production. American grain exports increased from 32 million tons in 1971 to 76 million in 1973. Canada and Australia also had huge grain exports. The USSR, Japan, and the European countries (collectively) each now feeds more than 100 million tons of grain to its animals. The USDA had succeeded in reducing U.S. surpluses.

1047. Castaigne, F.; Riel, R.R.; Boulet, M. 1975. Diffusion d'eau et de solides pendant la coagulation des fibres de protéines [Diffusion of water and solids during coagulation of protein fibers]. *Canadian Institute of Food Science and Technology Journal* 8(3):133-36. July. [3 ref. Fre; eng]
• ***Summary:*** Note: This is the earliest French-language document seen (Dec. 2004) that uses the term "fibres de protéines" to refer to protein fibers made by spinning soy protein. Address: Département des Vivres et Centre de Recherches en Nutrition, Faculté des Sciences de l'Agriculture et de l'Alimentation, Université Laval, Quebec, Canada.

1048. Ichiyama, Morio. 1975. Noda no rekishi [History of Noda]. Nagareyama, Chiba prefecture, Japan: Ron Shobo. 301 p. First ed. published in 1958 under title: Chiba-ken Noda Kyodoshi. [Jap]
• ***Summary:*** In the section titled "People from Noda who became known worldwide," the first person profiled is Shinzaburo MOGI (p. 263-65). "Mr. Shinzaburo Mogi, 5th son of the 5th Shichirouemon, was born in 1872 Feb. 27 at Noda. He studied at Tokyo Kosho (later Hitotsubashi Univ.), then left school after graduation. In 1892 he went to the USA. Initially, he worked for a milk company in Toronto, Canada. Then he worked at the Chicago [Illinois] branch office of Yamato Shokai. In 1897 he established Yamato Yunyu Co., an import company, and became its president. In 1913 he received Mr. Tsuneo Tanba as a general manager, to manage the soy sauce plant [?]. Under Mr. Tanba were Mr. Kitazawa and Mr. Kunihara.

Yamato Shokai was a company in Yokohama. whose president was Mr. Takeshi Oba. Its capitalization was 1,000,000 yen stock, half of the money put up by Junjiro Ishii and half by Mr. Shichirouemon Mogi. In 1907 in Denver [possibly some city other than Denver, Colorado?, says Ken Mogi IV] he managed a soy sauce plant. Later in Toronto, Canada, he had a relationship with a soy sauce plant. But neither of these soy sauce plants was successful. At International Trading he worked with Mr. Ichizaeomn Morimura (see History of Yokohama [which Ken Mogi says he would like to read]).

Mr. Tsuneo Tanba (a collector of ukiyo-e [color wood-block prints of everyday life in old Japan]), who worked under Mr. S. Mogi, said that Mr. S. Mogi, a Unitarian Christian, did not smoke or drink alcoholic beverages. He loved soy sauce, and he never left any soy sauce on his plate after a meal. He said: "I am not willing to go back to Noda. I do not want to manage a soy sauce plant in Noda."

When he was a student, Mr. S. Mogi helped Mr. Tokuzo Fukuda (later a famous scholar) by giving him 2.5 to 3 yen every month. Mr. S. Mogi asked his father to give Mr. Fukuda 6-9 yen per month for 1½ years. The father did not understand the situation so he visited S. Mogi's dormitory and found out the facts and was satisfied. On 1 Dec. 1946 Mr. Shinzaburo Mogi died.

Note 1. Translated by Kenzaburo "Ken" Mogi IV from the edition of 1975 (Showa 50 Aug. 1), for William Shurtleff of Soyfoods Center. Ken Mogi spent a great deal of time trying to find evidence that his ancestor, Shinzaburo Mogi, started a soy sauce plant in Denver, Colorado. He visited Denver in search of evidence. As of 2004 he stated that this was still a theory, NOT a proven fact.

Note 2. As of Feb. 2007, it is unclear whether or not Shinzaburo Mogi ever started a soy sauce plant in Denver, Colorado, or anywhere else in North America. There is no firm evidence that he did, only the memories of two people and some photos of the foundations of an old building. One of them, Tsuneo Tanba, is mentioned above. Yet Mr. Tanba gives no details. Note 3. Mr. Morio Ichiyama was born in 1897. Address: Noda, Japan.

1049. Dinshah, Freya. 1975. XXIII World Vegetarian Congress cook book. Malaga, New Jersey: North American Vegetarian Society. 40 p. Illust. No index. 27 cm. Spiral bound. Introduction by H. Jay Dinshah.
• ***Summary:*** This is a vegan cookbook. This congress is a milestone of the vegetarian movement both in North America and worldwide. "The International Vegetarian Union, founded in 1908, had held 22 previous Congresses from 1908 to 1973, each in the British Isles, continental Europe, or India." A congress is held every 2 years. The North American Vegetarian Society was created with two goals: (1) To bring about a complete renaissance of the vegetarian movement in the United States and Canada, and (2) To organize the 23rd Congress, which was held 16-28 Aug. 1975 at the University of Maine, Orono, Maine. Daily menus served at the Congress are listed on pages 7-8. Soya milk, and Willow Run Soya Lecithin Spread were available at each breakfast. Willow Run Spread, Soy Mayonnaise, Tamari Soy Sauce, Soya Milk, and Roasted Soya Beans were available at each lunch and dinner. Soy-related recipes include: Soya sprouts (p. 14-15). Soya butter (made with 3/4 cup soya powder, and ½ cup each soy oil and water, p. 16). Soy mayonnaise (with soya powder and Soyagen powder). Soya beans (boiled, then baked, p. 17). Soya peanut savory (with cooked soya beans, p. 20). Soya rounds (with cooked soya beans, baked, p. 20). Several tablespoons to 2/3 cup of Soyagen powder (powdered soymilk) or soya powder are used in many of the dessert recipes (p. 30-36). Soya milk (from soya powder, p. 32). Bread pudding (with soya milk, p. 32). Granola (with soya powder, p. 39). Page 40 lists 34 vegetarian societies affiliated with NAVS in the USA. Address: North American Vegetarian Society, 501 Old Harding Highway, Malaga, New Jersey.

1050. *Food Processing (Chicago).*1975. Textured vegetable protein with PER equal to 96% of casein: PER 2.0 + PER 0.8 = PER 2.4. Sept. p. 40.
• ***Summary:*** Perplus-73 is a textured vegetable protein product made from a blend of 80% defatted soy flour and 20% vital wheat gluten. Containing 52% protein with a PER (Protein Efficiency Ratio) of 2.4, it is available from Industrial Grain Products Limited, 1620 Sun Life Building, Montreal, Canada H3B 2X2.

1051. Food Systems Branch and Research Branch, Agriculture Canada; Grain Marketing Office. Industry, Trade and Commerce. 1975. Plant proteins in Canada: Utilization for human food. Canada. iii+ 163 p. Sept. 28 cm. [25+ ref]
• ***Summary:*** The title page depicts this as "An assembly of information describing protein crops, status of ingredient manufacturers and marketing, potential markets, research effort, government incentives and regulations, protein status reports, and sources of information."

Contents: Introduction. Protein crops: 1. Trends in breeding Canadian protein crops. 2. Statistical summaries, by crop, of production area, yield, production, farm price, farm value and protein yield.

Manufacturing: 1. Manufacturers, distributors, and vegetable protein associations in Canada, U.S.A., United Kingdom, Australia and Japan (incl. Canadian Vegetable Protein Association, Don Mills, Ontario; Food Protein Council (USA)). 2. Extraction processes for broad bean protein, oilseeds, soybean protein, rapeseed protein, wheat gluten, oat protein, corn refining, alfalfa protein.

Markets: 1. Canada's position in world plant protein markets. 2. Canada's position in world gluten markets. 3. Projected growth of plant protein food ingredients.

Tariffs: 1. Tariff description, by country and BTN number. 2. Canadian tariffs on vegetable flours, protein, oilseeds, oilcake and meal. 3. Countries entitled to British Preferential Tariff, Most Favoured National Customs Tariff, General Tariff, General Preferential Tariff.

Regulations: 1. Status of plant protein under Canadian Food and Drug Regulations. 2. Canadian regulations–protein and fat content in simulated and extended meat products. 3. Problems in evaluating protein quality. 4. Aspects of current U.S. legislation. 5. Proposed revised regulations for plant protein in U.S.A.

Government incentives: 1. Federal government assistance programs. 2. Provincial government assistance programs. 3. POS Pilot Plant Corporation.

Research effort: 1. Estimate of research effort, in man-years, on utilization of plant protein in Canada. 2. Non-exhaustive list of research topics on plant protein in Canada.

Status of Canadian plant protein development: 1. Canadian role in development of plant proteins. 2. Production and utilization of sunflower. 3. Current status of leaf protein. 4. Status of rapeseed protein. 5. SCP status. 6. Review of buckwheat as a potential source of human food. 7. Status of oat protein.

U.S.A. situation: 1. Review of "U.S. Plant Protein Situation." 2. Non-conventional food sources. Major sources of information on plant proteins. Address: Canada.

1052. Food Systems Branch and Research Branch, Agriculture Canada; Grain Marketing Office. Industry, Trade and Commerce. 1975. U.S. Food Protein Council

(Document part). In: Plant Proteins in Canada: Utilization for Human Food. 1975. Canada. iii+ 163 p. See p. 50. Sept. 28 cm. [1 ref]
• ***Summary:*** The three objectives of the Council are listed. "Members of the Council include: Archer Daniels Midland, Cargill, Central Soya, Far-Mar-Co., General Mills, Griffith Laboratories, Lauhoff Grain, Miles Laboratories, National Protein, Ralston Purina, A.E. Staley, Swift, Honeymead Products, Riceland Foods, Pfizer, and Nestlé."

Source: Grain Marketing Office, Trade Commissioner Service of I.T. & C. [Department of Industry, Trade and Commerce]. Address: Canada.

1053. Food Systems Branch and Research Branch, Agriculture Canada; Grain Marketing Office. Industry, Trade and Commerce. 1975. British vegetable protein producers and distributors (Document part). In: Plant Proteins in Canada: Utilization for Human Food. 1975. Canada. iii+ 163 p. See p. 51. Sept. 28 cm. [1 ref]
• ***Summary:*** The following British companies (all but 1 of the 17 listed) make or distribute soya protein products: 1. British Soya Products Ltd., Ware, Herts. 2. Rank, Hovis McDougall Agricultural Industries Ltd., London. 3. Messrs. Courtaulds, Manchester. 5. Spillers Ltd., Liverpool. 6. Chambers & Fargus Ltd., Hull. 7. Christian Salvensen Ltd., Grimsby. 8. British Arkady Ltd., Manchester. 9. Soya Foods Ltd., Barking, Essex. 10. Amsal Ltd., London. 11. Bush Boake Allen Ltd., London. 12. Oppenheimer Casing Co. (UK) Ltd., Edinburgh. 13. Griffith Laboratories (UK) Ltd., Summercotes, Derby. 14. Miles Laboratories, Bridgend, Glamorgan. 15. Croda Premier Ltd., Hull. 16 Crosse & Blackwell Ltd., Croydon. 17. Unilever Raw Materials Ltd., London.

Source: Grain Marketing Office, Trade Commissioner Service of I.T. & C. [Department of Industry, Trade and Commerce]. Address: Canada.

1054. Food Systems Branch and Research Branch, Agriculture Canada; Grain Marketing Office. Industry, Trade and Commerce. 1975. Japanese vegetable protein Manufacturers (Document part). In: Plant Proteins in Canada: Utilization for Human Food. 1975. Canada. iii+ 163 p. See p. 51. Sept. 28 cm. [1 ref]
• ***Summary:*** The following Japanese companies make soy (S) or wheat (w) protein products: 1. Ajinomoto Co. Inc. (s). 2. Azaki Gulico Co., Ltd. (w). 3. Kyowa Hakko Kogyo Co., Ltd. (s). 4. Showa Sangyo Co., Ltd. (s). 5. Shin Shin Industrial Co. Ltd. (w). 6. Takeda Chemical Industries, Ltd. (s). 7. Nisshin Flour Milling Co. Ltd. (w). 8. The Nisshin Oil Mills, Ltd. (s). 9. Nihon Koyu Co., Ltd. (s). 10. Nippon Shinyaku Co. Ltd. (w). 11. Nippon Flour Mills Co., Ltd. (w). 12. Nippon Tampaku Kogyo K.K. (s). 13. Fuji Oil Co., Ltd. (s). 14. K.K. Yokoo Shoten (w). 15. Yoshihara Oil Mill Ltd. (s). 16. Morinaga & Co. Ltd. (w).

"The above named companies have formed a Japanese Vegetable Protein Food Products Association."

Source: Grain Marketing Office, Trade Commissioner Service of I.T. & C. [Department of Industry, Trade and Commerce]. Address: Canada.

1055. Industrial Grain Products Ltd. 1975. IGP: Quality products ingrained (Leaflet). Montreal, Quebec, Canada. 2 p. Front and back.
• ***Summary:*** On the front of this color glossy leaflet is "IGP" in large red letters against a sky-blue background. Below are golden ears of wheat in a field. The text: "Industrial Grain Products Ltd. World leaders in: wheat proteins, wheat starches, hydrolyzed vegetable proteins."

On the back is a full-page color ad for PerPlus textured soy-wheat protein products. They have a minimum PER of 2.4. "PerPlus: the first textured natural soy-wheat protein products to comply with new Canadian regulatory requirements. Extra helping, extra profit... maintain nutritional value." A color large photo shows ground beef on a spatula. Address: 1620 Sun Life Building, Montreal, Quebec H3B 2X2, Canada. Phone: 514-866-7961.

1056. Smith, Elizabeth B. 1975. A guide to good eating the vegetarian way. *J. of Nutrition Education* 7(3):109-11. Sept. [17 ref]
• ***Summary:*** A food usage guide for lacto-ovo vegetarians shows in stepwise form how to select food and plan acceptable family meals with nutritional quality as the first priority. Address: Dep. of Foods and Nutrition, Faculty of Home Economics, Univ. of Manitoba, Winnipeg, MB, Canada R3T 2N2.

1057. National Soybean Processors Association. 1975. Year book and trading rules 1975-1976. Washington, DC. ii + 103 p.
• ***Summary:*** On the cover (but not the title page) is written: Effective October 1, 1975. Contents: The National Soybean Processors Association [Introduction and overview]. Constitution and by-laws. Officers and directors. Executive staff. Members. Standing committees. Food Protein Council. Trading rules on soybean meal. Sales contract. Appendix to trading rules on soybean meal: Official methods of analysis (moisture, protein, crude fiber, oil {only method numbers listed}, sampling of soybean meal {automatic sampler, probe sampler}), official weighmaster application, semi-annual scale report, official referee chemists (meal). Trading rules on soybean oil. Sales contract. Definitions of grade and quality of export oils. Soybean lecithin specifications. Appendix to trading rules on soybean oil: Inspection, grading soybean oil for color (N.S.P.A. tentative method), methods of analysis (A.O.C.S. official methods): Soybean oil, crude; soybean oil, refined; soybean oil, refined and bleached; soybean oil for technical

uses; soap stock, acidulated soap stock and tank bottoms (only method numbers listed), official weighmaster application, semi-annual scale report, official referee chemists (oil). Soybean oil export trading rules. Foreign trade definitions (for information purposes only).

The page titled National Soybean Processors Association (p. ii) states: "The NSPA is the professional association of America's soybean processors. Its members process and market more than 95 percent of all soybean crushed within the continental U.S. From nearly 85 processing centers, in every major soybean producing region of the nation, NSPA members service America's agricultural community.

"During the past crop year about 700,000,000 bushels of soybeans moved through processing plants of NSPA's 33 member firms. Approximately 60 percent of America's 1.2 billion-bushel soybean crop is bought and processed by NSPA members. Exporters account for another 32 percent of the crop, and the remainder [8%] is returned to farms for seed, feed, and residuals." Also discusses industry programs, soybean research, and international market development.

The section on officers, executive committee, and board of directors (p. 7-8) gives the name, company affiliation, and phone number of each person. Officers–President: Lowell K. Rasmussen, Honeymead Products Co. Vice President: John G. Reed, Jr., Continental Grain Co. Secretary: Stiles M. Harper, Southern Soya Corporation. Treasurer: T.J. Suelzer, Central Soya Co. Immediate past president: James R. Spicola, Cargill, Inc. Executive Committee: Donald B. Walker ('77), ADM. James R. Spicola, Cargill. Thomas J. Suelzer, Central Soya. John G. Reed, Jr., Continental. Martin Hinby ('76), Cook Industries.

Board of Directors (alphabetically by company; each member company has one representative on the board): Thomas H. Wolfe, Anderson, Clayton & Co. Donald B. Walker, Archer Daniels Midland Co. George H. Heinz, Buckeye Cellulose Corp. John Fallon, Bunge Corporation. James R. Spicola, Cargill, Inc. Thomas J. Suelzer, Central Soya Co., Inc. John G. Reed, Jr., Continental Grain Co., Martin Hilby, Cook Industries. Joe C. Givens, Dawson Mills. Alfred Jenkins, Delta Cotton Oil & Fertilizer Co. John A. Dotson, Far-Mar-Co., Inc. Kenneth E. Sullivan, Farmers Grain Dealers Assn. of Iowa. Donald M. Chartier, Farmland Industries, Inc. Gaylord O. Coan, Gold Kist Inc. Lowell K. Rasmussen, Honeymead Products Co. David C. Thompson, Krause Milling Co. Kenneth J. McQueen, Land O'Lakes, Inc. Floyd W. Brown, Lauhoff Grain Co. Kermit F. Head, Missouri Farmers Assn.–Grain Div. James A. Smith, National Protein Corp. Robert E. Hicks, Owensboro Grain Co., Inc. Frank P. Perdue, Perdue Incorporated. John H. Payne, Planters Manufacturing Co. William T. Melvin, Planters Oil Mill, Inc. Theodore W. Bean, Quincy Soybean Co. E.J. Cordes, Ralston Purina Co., W.L. Knoll, Riceland Foods, Inc. J.D. Morton, Sherman Oil Mill. Stiles M. Harper, Southern Soya Corp. James W. Moore, A.E. Staley Mfg. Co. W.W. Moore, Swift Edible Oil Co. Preston C. Townsend, Townsend's Inc. Tyler Terrett, West Tennessee Soya Mill, Inc.

Executive office, Washington, DC: Executive Director, Sheldon J. Hauck. Director, Public Affairs: Jack DuVall. Administrative Asst.: Jean N. Sullivan. National Soybean Crop Improvement Council: Robert W. Judd, Managing Director. General counsel: Edward H. Hatton, Esq., Jenner & Block, Chicago, Illinois.

Members (listed alphabetically by company; within each company, first the name of the official Association representative {who is on the Board}, followed by the other personal members listed alphabetically by surname. For example, Archer Daniels Midland Co., the company with the most personal members, has 24. After the name of each personal member is given his address and phone number. In the listing below, the number of personal members is shown in parentheses after the name of each company, followed by city and state of the various locations): Anderson, Clayton & Co. (6); Phoenix, Arizona; Osceola, Arkansas; Jackson, Mississippi; Vicksburg, Mississippi; Houston, Texas. Archer Daniels Midland Co. (24); Decatur, Illinois; Galesburg, Illinois; Granite City, Illinois; Fredonia, Kansas; Mankato, Minnesota; Red Wing, Minnesota; St. Louis, Missouri; Fremont, Nebraska; Lincoln, Nebraska; Kershaw, South Carolina. Buckeye Cellulose Corp. (8); North Little Rock, Arkansas; Augusta, Georgia; Cincinnati, Ohio; Memphis, Tennessee. Bunge Corporation (5); St. Louis, Missouri; New York City, New York; Cargill, Inc. (15); Gainesville, Georgia; Cedar Rapids, Iowa; Des Moines, Iowa; Sioux City, Iowa; Washington, Iowa; Chicago, Illinois; Wichita, Kansas; Minneapolis, Minnesota; Fayetteville, North Carolina; Memphis, Tennessee; Chesapeake, Virginia. Central Soya Co., Inc. (11); Chicago, Illinois; Gibson City, Illinois; Decatur, Indiana; Fort Wayne, Indiana; Indianapolis, Indiana; Belmond, Iowa; Marion, Ohio; Bellevue, Ohio; Delphos, Ohio; Chattanooga, Tennessee. Continental Grain Co. (8); Guntersville, Alabama; Chicago, Illinois; Taylorville, Illinois; New York City, New York; Cameron, South Carolina. Cook Industries (12); Pine Bluff, Arkansas; Emporia, Kansas; Marks, Mississippi; Memphis, Tennessee. Dawson Mills (3); Dawson, Minnesota. Delta Cotton Oil & Fertilizer Co. (1); Jackson, Mississippi. Far-Mar-Co., Inc. (1); St. Joseph, Missouri. Farmers Grain Dealers Assn. of Iowa (Cooperative), Soybean Processing Div. (1); Mason City, Iowa. Farmland Industries, Inc. (3); Van Buren, Arkansas; Sergeant Bluff, Iowa; Kansas City, Missouri. Gold Kist Inc. (3); Atlanta, Georgia. Honeymead Products Co. (3); Mankato, Minnesota. Krause Milling Co. (2); Milwaukee, Wisconsin. Land O'Lakes, Inc. (3); Fort Dodge, Iowa; Sheldon, Iowa. Lauhoff Grain Co. (1); Danville, Illinois. Missouri Farmers Assn.–Grain Div. (4);

Mexico, Missouri. National Protein Corp. (2); Champaign, Illinois; Chicago, Illinois. Owensboro Grain Co., Inc. (1); Owensboro, Kentucky. Perdue Incorporated (2); Salisbury, Maryland. Planters Manufacturing Co. (2); Clarksdale, Mississippi. Planters Oil Mill, Inc. (1); Rocky Mount, North Carolina. Quincy Soybean Co. (4); Quincy, Illinois. Ralston Purina Co. (8); Bloomington, Illinois; Lafayette, Indiana; Iowa Falls, Iowa; Louisville, Kentucky; St. Louis, Missouri; Raleigh, North Carolina; Memphis, Tennessee. Riceland Foods, Inc. (8); Helena, Arkansas; Stuttgart, Arkansas. Sherman Oil Mill (1); Fort Worth, Texas. Southern Soya Corp. (1); Estill, South Carolina. A.E. Staley Manufacturing Co. (8); Decatur, Illinois. Swift Edible Oil Co., Div. of Swift & Co. (1); Chicago, Illinois; Townsend's Inc. (2); Millsboro, Delaware. West Tennessee Soya Mill, Inc. (1); Tiptonville, Tennessee.

Associate Members: Anderson Clayton Foods, Dallas, Texas. Best Foods Div. of CPC International Inc., Englewood Cliffs, New Jersey. Canadian Vegetable Oil Processing Co., Hamilton, Ontario, Canada. Capital City Products Co., Div. of Stokely-Van Camp, Inc., Columbus, Ohio. I.H. French & Co., Champaign, Illinois. General Mills, Inc., Minneapolis, Minnesota. Glidden-Durkee, Div. of SCM Corporation, Chicago, Illinois (Gerald J. Daleiden). Grain Processing Corp., Muscatine, Iowa (H.P. Woodstra). Hartsville Oil Mill, Hartsville, South Carolina (Richard A. Koppein). Humko Products, Memphis, Tennessee. Hunt-Wesson Foods, Inc., Fullerton, California. Kraft Foods Div. of Kraftco Corp., Chicago, Illinois. Lever Bros Co., New York City, New York. Maple Leaf Mills Ltd., Toronto, Ontario, Canada (W.G. Milliken). Procter & Gamble Co., Cincinnati, Ohio. Quaker Oats Co. (The), Chicago, Illinois. Schouten International, Inc., Minneapolis, Minnesota. Southern Cotton Oil Co., New Orleans, Louisiana. Southern Feed Ingredients Co., Memphis, Tennessee. Wilsey Foods, Los Angeles, California.

Standing committees: For each committee, the function of the committee, the names of all members (with the chairman designated), with the company and company address of each are given–Crop Improvement Council. Meal trading rules. Oil trading rules. Safety and insurance. Soybean Research Council. Technical. Traffic and transportation. Food Protein Council (Objective and rules adopted 3 March 1971, amended 5 Nov. 1971). Address: 1800 M St., N.W., Washington, DC 20036. Phone: (202) 452-8040.

1058. Graham, Larry. 1975. Soy oil faces stiff competition. *Soybean Digest.* Dec. p. 12-13.
• ***Summary:*** The biggest immediate threat is generally considered to be palm oil, followed by coconut oil, Peruvian fish oil, Canadian rapeseed, Nigerian peanuts, animal fats, olive oil, Soviet sunflowers, cottonseed oil, Brazilian soy oil (discussed in great detail).

1059. Ralston Purina Co. 1975. Ralston Purina Company (News release). Checkerboard Square, St. Louis, MO 63188. 11 p. Dec.
• ***Summary:*** Contents: Introduction. Agricultural products and service. Research. Protein production and marketing. Consumer products. Food service and restaurants. International and Canadian operations. Ralston Purina and the future. New ventures. Corporate organization.

"Ralston Purina Company was founded in 1894 as the Robinson-Danforth Commission Company, St. Louis, Missouri." A broadly-based, protein-oriented food and feed company, it employs more than 50,000 people throughout the USA, Canada, and overseas. "The Company transacts more than $3,000 million of business annually and is known domestically and worldwide for its Checkerboard trademark products." Address: St. Louis, Missouri.

1060. Siegel, A.; Bhumiratana, A.; Lineback, D.R. 1975. Development, acceptability, and nutritional evaluation of high-protein soy-supplemented rice noodles for Thai children. *Cereal Chemistry* 52(6):801-12. Nov/Dec. [24 ref]
• ***Summary:*** "Dehydrated rice noodles, supplemented with 20 and 30% full-fat soy flour (dry basis), were developed for use in feeding programs at Child Nutrition Centers in Thailand... These soy-rice noodles contain 15.0 and 18.0% protein on a moisture-free basis, respectively; the control contained 7.8% protein... Protein costs of soy-rice noodles were substantially less than those for regular rice noodles." These noodles were not apparently sold commercially. "The soy flour used was Kaset full-fat soy flour, prepared semicommercially by the Institute of Food Research and Product Development (IFRDP), Bangkok, by the procedure described by Bhumiratana and Nondasuta" in 1972. This soy flour contained 40-49% protein. Address: 1&3. Kansas State Univ.; 2. Inst. of Food Research & Product Development, Kasetsart Univ., P.O. Box 4-710, Bangkok, Thailand; Siegel's present address: International Development Research Centre, Box 8500, Ottawa, Canada K1G 3H9.

1061. Uhm, I.H. 1975. A supply response model of Canadian rapeseed and soybeans. *Canada. Department of Agriculture, Economics Branch, Publication* No. 75/15. 57 p. Dec. [34 ref]
• ***Summary:*** "Introduction: This study theoretically formulates and statistically estimates the supply response of Canadian rapeseed and soybeans to price and non-price incentives. Specifically, this study measures the magnitude of adjustment coefficients and the elasticities of Canadian oilseed supply with respect to price and non-price variables in the short- and long-run. It also examines Canadian oilseed acreage allocation patterns."

"Historical background. A. Oilseed production: Canada's 'Cinderella' crop, rapeseed, was introduced in western Canada (mainly in the Parkbelt zone of the Prairies) in the 1940s as a wartime measure to satisfy a need for marine engine lubricants. There were about 75 growers in Saskatchewan in 1944, with about 4,800 acres under production. By the mid-1950's following a decade of stagnation, rapeseed production increased rapidly in importance, particularly since the early 1960's. In the 1969-70 crop year, Canadian rapeseed production was 420 times above the 1944 level, ranking Canada third in world production and constituting the world's largest exporter. Rapeseed is an excellent source of edible oil and protein meal for animal food, having an oil content of approximately 40 percent, and a meal content of close to 60 percent.

"While soil and climactic conditions restrict rapeseed production mainly to the Parkbelt zone of the Prairies, Canadian soybean acreage is concentrated in the counties of southern Ontario. The first report on Canadian soybean production in Canada was by C.A. Zavitz, of the Ontario Agricultural College in 1893. In the late 1920's a few farmers were growing small acreages of beans for grain in southern Ontario. Acreage expanded until, by the early 1950's soybeans became a major cash crop in southern Ontario. Canadian soybean acreage increased from 36,000 acres in 1944-45 to 322,00 in 1969-70 and was roughly one-fifth of rapeseed acreage for the three year average 1968-69 and 1970-71.

"From a land use viewpoint, soybeans in southern Ontario compete mainly with winter wheat, oats, corn mixed grains and barley, while rapeseed competes with wheat and barley in the Parkbelt zone of the Prairies." Address: Communications Unit, Economics Branch, Agriculture Canada, Ottawa K1A 0C5, Canada.

1062. **Product Name:** Textured Soy.
**Manufacturer's Name:** General Mills of Canada Ltd.
**Manufacturer's Address:** 1330 Martingrove Road, P.O. Box 505, Rexdale, Ontario M9W 4X4, Canada.
**Date of Introduction:** 1975.
**New Product–Documentation:** Agriculture Canada. 1975. "Plant Proteins in Canada." Sept. p. 34.

1063. **Product Name:** Textured Soy, and Textured Soy Protein Concentrate.
**Manufacturer's Name:** Griffith Laboratories Ltd.
**Manufacturer's Address:** 757 Pharmacy Ave., Scarborough, Ontario, Canada.
**Date of Introduction:** 1975.
**New Product–Documentation:** Agriculture Canada. 1975. "Plant Proteins in Canada." Sept. p. 34.

1064. **Product Name:** PerPlus-73 (Textured Vegetable Proteins–Soy and Gluten) [Unflavored, Natural or Caramel color].
**Manufacturer's Name:** Industrial Grain Products Ltd.
**Manufacturer's Address:** P.O. Box 6089, Montreal, Quebec H3C 3H1, Canada. Phone: 514-866-7961.
**Date of Introduction:** 1975.
**Ingredients:** Textured soy and gluten.
**New Product–Documentation:** IGP Technical Bulletin. 1975. Jan. PerPlus-73. 10 p. All pages of these individual Bulletins are printed with red and black ink on orange paper. Contents: Description and nutritional composition. Meat loaf mix with PerPlus-73. Meat loaf mix with 30% PerPlus-73. Sloppy Joe with 25% PerPlus-73. Chili-con PerPlus-73. Spaghetti meat type sauce with PerPlus-73. Steakettes with 25% PerPlus-73. Made in Canada, this is "an optimized blend of defatted soy flour and wheat protein concentrate."

Agriculture Canada. 1975. "Plant Proteins in Canada." Sept. p. 34.

Letter from USDA Food and Nutrition Service. 1975. Aug. 25. Re: PerPlus is an acceptable textured vegetable protein product under FNS Notice 219.

IGP: Quality products ingrained (Leaflet). 1975.

1065. **Product Name:** Tofu.
**Manufacturer's Name:** Metta Tofu Products.
**Manufacturer's Address:** Wren Rd., Denman Island, BC, V0R 1T0, Canada. Phone: 604-335-0108.
**Date of Introduction:** 1975.
**New Product–Documentation:** Shurtleff & Aoyagi. 1977. Jan. 28. Commercial Tofu Shops and Soy Dairies.

Shurtleff & Aoyagi. 1978, Dec. *The Book of Tofu* (Ballantine pocketbook edition). "Appendix B: Tofu Shops and Soy Dairies in the West." p. 399. Owner: Ray Lipovsky; sea water tofu.

Richard Leviton. 1982, Sept. "In a small bright building: Cottage soy industries on Vancouver Island." Ray Lipovsky "has been churning out tofu since 1975 and can lay claim to being one of North America's earliest commercial and Caucasian tofu craftsmen." He makes tofu curded with sea water.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name and address. Owners: Ray Lipovsky & Robbie Newton.

1066. **Product Name:** Tofu.
**Manufacturer's Name:** Tofu Shop (perhaps Chinese Run).
**Manufacturer's Address:** Avenue Road, Toronto, ONT, Canada.
**Date of Introduction:** 1975.
**New Product–Documentation:** Talk with Martha Gifford Thompson of Rochester Zen Center. 1989. April 11. Once

or twice she visited a small tofu shop on Avenue Rd. in Toronto. It was not Japanese and probably not Korean. It may well have been Chinese run. This company had a name. They sold other products besides soy. Zensen, her former husband, might know more, about this shop.

1067. Wright, Louise. 1975. The road from Aston Cross: An industrial history, 1875-1975. Imperial House, Leamington Spa, Warwickshire, England: Smedley–HP Foods Ltd. 84 p. Illust. 25 x 19 cm. No index.

• ***Summary:*** This book was published on the centenary of the HP Foods Co. The story begins in 1875 when Edwin Samson Moore bought land in Tower Road, Aston Manor, and built his vinegar brewery, registered as the Midland Vinegar Company. He is believed to have taken up agencies for Mellors Sauce and Banquet Sauce. In 1886 the wheat sheaf was registered as the company's trade mark. In 1901 The Moores registered the offices of F.G. Garton Sauce Manufactory at Tower Road. In 1903 H.P. Sauce was launched and sold in Canada. Today it contains soy sauce. In 1902 adjacent Vulcan Brewery was acquired by the Moores. In 1904 the name H.P. was re-registered by the Midland Vinegar Co. In 1906 hundreds of donkey carts toured Great Britain to introduce H.P. Sauce. In 1913 H.P. Sauce was sold in the USA, and by 1917 in France and South Africa. In 1924 the Midland Vinegar Co. was sold to the British Shareholders' Trust, then floated as a public company named HP Sauce Ltd.

In 1930 HP Sauce Ltd. acquired Lea & Perrins Ltd. of Worcester by an exchange of shares. Lea & Perrins Inc. of New York remained a separate entity. Three members of the Perrins family (Dyson, Capt. Allan, and Col. Charles) joined the board of HP Sauce Ltd. Captain Alan Perrins visited Australia to arrange for the manufacture of HP Sauce and Lea & Perrins Sauce there. In 1931 manufacture of HP Sauce started in Sydney, Australia.

In 1940 bottling of Lea & Perrins Worcester Sauce was moved to Tower Road. In 1942 because of shipping losses, HP Sauce was manufactured by E.D. Smith and Sons at Winona, Ontario, Canada. In 1945-46 the bottling of Worcester Sauce was transferred back to Worcester.

In 1950 the purchase of market research data from A.C. Nielson started. In 1957 J.E. Lea was appointed managing director of Lea & Perrins. In 1966 first computer installed.

In 1967 HP Sauce Ltd. was acquired by the Imperial Tobacco Co. In 1969 H.P. Fruity Sauce (which now contains soy sauce) was launched.

In 1972 the company was renamed Smedley-HP Foods Ltd. (Smedley-HP for short) and the company offices were moved in phases to Imperial House, Leamington Spa.

Note: In 1916 the Dyson Perrins Laboratory was established at Oxford University. Founded with an endowment from Charles Dyson Perrins, heir to the Lea & Perrins Worcestershire sauce company, it was the main centre for research into organic chemistry at Oxford from 1916 to 2003, when it was retired. "During its 87 year working life, the laboratory had an extremely distinguished career; it can claim a stake in shaping the scientific careers of two Nobel Laureates, namely Lord Todd (1957) and Sir John W. Cornforth (1975) who passed their formative years as young chemists in the laboratories" (Source: Wikipedia). Address: Warwickshire, England.

1068. deMan, J.M. 1976. Texture-structure relationships in new protein foods. *Cereal Foods World* 21(1):10-13. Jan. [4 ref]

• ***Summary:*** Contents: Introduction. Spun fibers. Extruded products. Additional techniques (kori-tofu). Water sorption characteristics. Textural characteristics.

Photos show: (1) Scanning electron microscopy of spun soy fibers at six magnifications. (2) John M. deMan, with a brief biography. (3) Scanning electron microscopy of TVP. (4) Scanning electron microscopy of kori-tofu. (3) Scanning electron microscopy of structured soy protein concentrate. Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT, Canada.

1069. Hymowitz, T.; Carmer, S.G.; Newell, C.A. 1976. Soybean cultivars released in the United States and Canada: Morphological descriptions and responses to selected foliar, stem, and root diseases. *INTSOY Series* No. 9. 31 p. Jan. (College of Agric., Univ. of Illinois at Urbana-Champaign). [39 ref]

• ***Summary:*** This book consists mainly of tables generated from a computerized database. Information is given on 331 soybean cultivars. The introduction states: "The data contained in this bulletin were compiled from progress reports issued by Drs. Bernard and Hartwig, which were based in part on contributions made by collaborating pathologists, as well as from articles and bulletins authored by many investigators. The data were coded, punched on cards, and subsequently transferred to a computer storage system. The program used to retrieve the stored data was based upon the TAXIR system developed at the University of Colorado. References used in compiling the data can be found on pages 4 to 7 of this bulletin.

"We wish to thank those scientists who have contributed their data to the germplasm data bank and the following individuals who spent many hours coding, punching, proofreading, and programming the data: Dr. Satish Chandra, Billie Porter, Marsha King, and Barbara Worosz."

Table 1 is "Morphological descriptions of soybean cultivars released in the United States and Canada." Cultivars are listed in alphabetical order. The following information is given for each: Maturity group, flower color, pod color, seed coat color, hilum color, pubescence color, pubescence type (normal, appressed, semiappressed, dense).

Table 2 is "Responses to selected foliar diseases of soybean cultivars released in the United States and Canada." The diseases are bacterial blight, bacterial pustule, frogeye, frogeye race 2, and soybean rust.

Table 3 is "Responses to selected foliar, stem, and root diseases of soybean cultivars released in the United States and Canada." The diseases are brown spot, downy mildew, brown stem rot, pod and stem blight, and phytophthora root rot.

Talk with Ted Hymowitz. 1998. July 5. Ted and his colleagues created a computerized database, with the data entered on 80-column paper punch cards, using software that Sam G. Carmer borrowed from Washington State University. Carmer, a statistician, did the technical computer work. The data was stored on a magnetic tape on the University's mainframe computer; there were no personal computers in those days. They got a small grant to fund the project. This database was the first of its kind–and was used as the basis for a number of similar subsequent publications by other authors. Address: Dep. of Agronomy, Univ. of Illinois, Urbana.

1070. Sanderson, J.B. 1976. Soybeans–Soybean variety testing. *Research Station Charlottetown, P.E.I., Research Summary* For the year 1975. See p. 40. (Agriculture Canada Research Branch).

• ***Summary:*** Soybeans are discussed in the section titled "Protein and New Crops." "Several varieties of soybeans yielded over 40 bu/acre. Twenty varieties of soybeans were evaluated [at Charlottetown] in 1975. All varieties yielded over 30 bushels/acre with several varieties yielding over 40 bu/acre. All varieties matured in the field by late Sept." The following varieties had the highest yields (at 15% moisture) in pounds per acre: 073-4 (2,757 lb/acre; 118 days to maturity); 073-5 (2,582 lb/acre; 108 days to maturity); Evens (2,562 lb/acre; 124 days to maturity); 073-7 (2,459 lb/acre; 114 days to maturity). Note: lb/acre x 1.12 = kg/ha. Address: Prince Edward Island, Canada.

1071. *Toronto Star (Ontario, Canada).*1976. Vegetable oil plant planned for Windsor. March 25. p. C-11.

• ***Summary:*** "Maple Leaf Mills said that purchase option agreements have been negotiated with Morton Terminal Ltd. on two sites in Windsor for the construction of a $37 million vegetable oil processing complex.

W.G. Milliken, president of Maple Leaf Monarch Co. said that one of the two sites would be bought for an undisclosed amount within the next few weeks.

"Maple Leaf Monarch Co. was formed early this year as a joint venture by Maple Leaf Mills Ltd. and Lever Bros. Ltd. to construct the vegetable oil processing complex and to carry on a refining business in Canada."

1072. Maple Arrow: New Canadian soybean variety. 1976. Seed color: Yellow.

• ***Summary:*** Agriculture Canada Research Station. 1977. "Summary–Soybean work Nova Scotia 1954-1977." Kentville, Nova Scotia, Canada: ACRS. 62 p. Pages 47-51 contain tables which also include summary results of soybean trials conducted in 1976 at Charlottetown (Price Edward Island),... For each variety, the yield (in kg/ha), protein yield (in kg/ha), percentage of protein in the seeds, and percentage of oil in the seeds is given for each of the 3 locations. The best varieties (Maple Arrow, Altona, Portage) gave yields in the range of 2,400 to 3,300 kg/ha.

At Charlottetown (PEI), the highest yielding soybean varieties were Maple Arrow (2,600 kg/ha), M65-217 (2,447), and Altona (2,258).

Agriculture Canada, Food and Inspection Branch. 1982. "Amended description of variety." Nov. 3. 2 p. "Variety: Maple Arrow. License No. 1674. Date licensed: April 1, 1976. Origin and breeding: Originated from the cross Harosoy 63 x 840-7-3 made at the Agriculture Canada Research Station, Harrow, Ontario. Strain 840-7-3 is a very early selection from [Sven Holmberg] Sweden.

"Variety characteristics–Plant characteristics: Hypocotyl colour: purple. Flower colour: purple. Pubescence colour: brown. Lodging resistance: good. Disease reaction: resistant to *Phytophthora megasperma* races 1-4 but not races 5 and 6. Seed characteristics: Normal coat colour: shiny, yellow. Coat colour variant: brown. Hilum colour: brown. Hilum colour variant: black. Peroxidase activity: low. Oil content: higher than Altona or Vansoy. Protein content: lower than Altona or Vansoy. Maturity: 2500-2700 Heat Units.

Performance: In two years of the Ontario Soybean Variety Trials (Table 1), Maple Arrow outyielded both Altona and Vansoy. Maple Arrow generally matures a few days earlier than Altona and a week earlier than Vansoy, and possesses significantly stalk strength and seed quality."

Maintenance of breeder seed: Agriculture Canada Research Station. Canadian distributor: Ontario Pedigreed Stock Seed Distribution Committee. Recommended by: Ontario Oil and Protein Seed Crop Committee. Experimental data: Two tables comparing Maple Arrow, Altona, Vansoy.

Letter (e-mail) from Harvey Voldeng of Agriculture Canada. 2010. Feb. 15. "Maple Arrow was registered on 1 April, 1976. I have the variety description submitted to the Variety Registration Office in Canada, and will send you that as soon as I can find someone with a scanner to make a .pdf file. It gives breeding history and varietal characteristics. This information was never published."

1073. Maple Arrow: New Canadian soybean variety. 1976. Seed color: Yellow.

• ***Summary:*** Agriculture Canada Research Station. 1977. "Summary–Soybean work Nova Scotia 1954-1977." Kentville, Nova Scotia, Canada: ACRS. 62 p. Pages 47-51 contain tables which also include summary results of soybean trials conducted in 1976 at Charlottetown (Price Edward Island),... For each variety, the yield (in kg/ha), protein yield (in kg/ha), percentage of protein in the seeds, and percentage of oil in the seeds is given for each of the 3 locations. The best varieties (Maple Arrow, Altona, Portage) gave yields in the range of 2,400 to 3,300 kg/ha.

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Agriculture Canada, Food and Inspection Branch. 1982. "Amended description of variety." Nov. 3. 2 p. "Variety: Maple Arrow. License No. 1674. Date licensed: April 1, 1976. Origin and breeding: Originated from the cross Harosoy 63 x 840-7-3 made at the Agriculture Canada Research Station, Harrow, Ontario. Strain 840-7-3 is a very early selection from [Sven Holmberg] Sweden.

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Performance: In two years of the Ontario Soybean Variety Trials (Table 1), Maple Arrow outyielded both Altona and Vansoy. Maple Arrow generally matures a few days earlier than Altona and a week earlier than Vansoy, and possesses significantly stalk strength and seed quality."

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Letter (e-mail) from Harvey Voldeng of Agriculture Canada. 2010. Feb. 15. "Maple Arrow was registered on 1 April, 1976. I have the variety description submitted to the Variety Registration Office in Canada, and will send you that as soon as I can find someone with a scanner to make a .pdf file. It gives breeding history and varietal characteristics. This information was never published."

1074. Fisher, G.A.; Davies, L.L. 1976. Grain corn and soybean production in southern Ontario: Production costs and returns in Essex, Kent, and Elgin counties, 1973 and 1974. Ontario, Canada: Ministry of Agriculture and Food. 19 p. April. (Economics Information). Unpublished manuscript.
• ***Summary:*** Contents: Index to 17 tables. Introduction. Methods used in determining costs and returns [profits]. Production costs and returns for grain corn. Production costs and returns for soybeans: Gross returns and yields, production costs, a comparison of 1973 and 1974 soybean production costs and returns for ten of the same study farms. Appendix. Address: Economics Branch, Ontario Ministry of Agriculture and Food, Legislative Buildings, Queen's Park, Toronto, ONT M7A 1B6, Canada.

1075. Littlejohns, D.A.; Tanner, J.W. 1976. Preliminary studies on the cold tolerance of soybean seedlings. *Canadian J. of Plant Science* 56(2):371-75. April. [9 ref. Eng; fre]
• ***Summary:*** The authors suggest cultivar screening at 10ºC to select cold-tolerant lines for early planting, thus permitting better utilization of a longer growing season in cold, northerly latitudes. Address: 1. Farm Crops Section, Ridgetown College of Agricultural Technology, Ridgetown, Ontario, N0P 2C0; 2. Crop Science Dep., Univ. of Guelph, Guelph, Ontario N1G 2W1. Both: Canada.

1076. Petkau, A.; Chelack, W.S. 1976. Radioprotective effect of superoxide dismutase on model phospholipid membranes. *Biochimica et Biophysica Acta* 433(3):445-56. May 21. [42 ref]
• ***Summary:*** Lipids from both soybeans and fresh beef brain were used. Hydroperoxide formation in model membranes was measured after exposure to X-rays or gamma rays in the presence of the enzyme bovine superoxide dismutase and other radical scavengers. The enzyme dismutates superoxide and protects membranes after an acute exposure to ionizing radiation and from low level radiation at natural background. The structure of membranes is currently viewed as a mosaic array of protein particles floating in a double-layered sheet of lipid molecules. Address: Atomic Energy of Canada Limited, Whiteshell Nuclear Research Establishment, Medical Biophysics Branch, Pinawa, Manitoba (Canada).

1077. MacDonald, W.C.; Dueck, J.W. 1976. Long term effect of shoyu (Japanese soy sauce) on the gastric mucosa of the rat. *J. of the National Cancer Institute* 56(6):1143-47. June. [13 ref]
• ***Summary:*** The long term effects of feeding shoyu to rats and its effect on gastric mucosa were studied. The animals fed shoyu were smaller and healthier than the controls. Breast tumors developed in 10 control rats, but none developed in those fed shoyu. It was concluded that shoyu did not appear to be a carcinogen in rats.

Note: This is the earliest document seen (May 2000) concerning soy and prevention of breast cancer–in

laboratory animals. Address: 1. Dep. of Medicine, Univ. of British Columbia, Vancouver, BC, Canada.

1078. Pearson, Richard. 1976. Early civilization in China: Book review of *The Cradle of the East*, by Ping-ti Ho. *Science* 193(4251):395-96. July 30.
• ***Summary:*** The purpose of this book is "to ascertain whether the major cultural elements which eventually coalesced in Shang civilization were of indigenous [Chinese] origins." The book is "an attempt to show that from the Yang Shao Neolithic through to the Chou there was a continuous series of creative innovations in North China that gave rise to and fostered Chinese civilization." Yang Shao culture began before 5000 B.C. in what is today southern Shensi, Shansi, and northwestern Honan provinces. The soil was loess and the main crop was millet. Ho believes that the Yang Shao developed the world's earliest writing system, consisting of word signs on pottery. Rice was domesticated in central China by 4000 B.C. Wheat and barley were introduced from the West in the second or late third millennium B.C. Bronze technology developed about 1600 B.C. Ho concludes that the major elements of Chinese civilization are all derived from the Yang Shao nuclear area; they reached other parts of China by a centrifugal process.

But the reviewer (like a number of specialists in Southeast Asian archaeology) is critical of this claim and the model of "cradles" and diffusion on which it is based. He believes, based on archaeological evidence, that cultivation of food crops may have been earlier in South China and Southeast Asia than in North China–because of favorable early post-Pleistocene conditions. Address: Dep. of Anthropology, Univ. of British Columbia, Vancouver, BC, Canada.

1079. Momcilovic, Berislav; Belonje, B.; Giroux, A.; Shah, B.G. 1976. Bioavailability of zinc in milk and soy protein-based infant formulas. *J. of Nutrition* 106(7):913-17. July. [19 ref]
• ***Summary:*** According to trials on young rats, to "provide equivalent amounts of available zinc, the total zinc content of the soy protein-based formula would need to be at least 20% higher than that of the formula containing milk protein." Address: Nutrition Research, Food Directorate, Dep. of Health and Welfare, Ottawa, Canada.

1080. Rennie, Gary. 1976. Maple Leaf plant construction set for November. *Windsor Star (Essex County, Ontario, Canada)*. Aug. 4. p. 1.
• ***Summary:*** Construction of the $37-million Maple Leaf Monarch vegetable oil processing plant will start in November this year, William Milliken, president of the company said today. The $37 million includes the price of the land. It is scheduled to begin operating in September 1978.

"The plant will be the largest integrated vegetable oil processing plant of its kind in Canada. A 41-acre site in the Morton Industrial Park in Windsor's west end [on the Detroit River waterfront] has been purchased for the plant which is a joint venture of Maple Leaf Mills Ltd. and Lever Brothers Ltd., both of Toronto."

The plant, which will employ about 100 workers permanently, and will process mainly soybeans (both locally grown and imported from the USA) plus some flax, rapeseed and sunflower seeds. With a processing capacity of about 1,400 metric tons per day, it will produce about 41% of the vegetable oils and meals in Eastern Canada.

"Maple Leaf Mills has been active in oil seed processing since 1941 and its vegetable oil division will be the nucleus of the new company. Lever Brothers Ltd., through its subsidiary, Monarch Fine Foods Ltd., is a leading manufacturer of edible oils and margarine."

Note: This is the earliest document seen stating that Lever Bros. owns part of Maple Leaf Monarch.

1081. Carruthers, Clive A. 1976. Re: The good work of PLENTY in Guatemala. Letter to PLENTY, The Farm, Summertown, Tennessee 38483 USA, Aug. 24. 1 p. Typed, with signature on letterhead.
• ***Summary:*** "Dear Sirs: As my term in Guatemala is drawing to an end, I wish to write and comment on all the wonderful help we have received from various individuals and organizations following the February 4th earthquake.

"One of the highlights in the group of volunteers is the 'PLENTY Group' from the United States. I was most appreciative of their offer to help and was fortunate to have their continued support from early April through to the present.

"This group has been most effective and one with the least problems that I have dealt with. Their calm, efficient manner and their ability to work as a unit is a pleasure to see and their direct participation has resulted in the construction of 10 schools which had been destroyed by the earthquake. In addition to these schools, they greatly assisted us in the early stages of house construction and the operation of our pre-fab factory. In my view, Canada, the Canadian Embassy in Guatemala, and the Guatemalan people are most fortunate in having the services of the 'PLENTY Group' and I hope that our association is able to continue to the benefit of both parties. Indeed we have learned much from our association with this group.

"Thanks again for allowing them to participate with us in this extremely valuable contribution to Guatemala. Yours sincerely,..." Address: Chargé d'Affaires, a.i., Canadian Embassy, P.O. Box 400, Guatemala, [Guatemala City], C.A. [Central America].

1082. Bennett, Gordon. 1976. Re: What is Miso? pamphlets from Westbrae Natural Foods. Letter to William Shurtleff at New-Age Foods Study Center, Aug. 25. 2 p. Handwritten, with signature. [1 ref]

• ***Summary:*** "(1) Greetings! This letter is a collection of several days of considerations: (2) Is it possible to omit your side of how miso is packaged in America–our miso bag looks terrible next to others, and its a label we no longer use; a new slide?

"(3) Is it possible to get some pictures made of the miso slides–we'd like to put some of the more striking one into our pricelist & perhaps use as displays in our stores. I will arrange and pay for this.

"(4) Re giving away pamphlets across the country; we feel this is basically a good idea. However (1) we would like you to give away the WB [Westbrae] logo pamphlets...

"(5) Sea vegetables–we are writing to Japan to determine what their labeling capabilities are–this will actually decide whether we can use your copy as is, or whether we need to edit it down...

"(6) Due to the surprisingly small turnout at the lecture, our expenses were much greater than the number of people present @ $1.00 per person. Next time we will use posters!" Note: Bill Shurtleff gave a outdoor lecture and slide show for Westbrae on Tuesday, Aug. 24, at John Hinkel Park in Berkeley, from 5-8 p.m.

"(7) A number of requests are coming for single pamphlets. We would like to forward there to you for your follow-up and interest. (8) The overseas mailing are more complex than we had thought. (9) Only 1 reply on the pamphlets so far–Manna in Toronto [Ontario, Canada]–their logo–small number [5,000]. (10) It is much more convenient for me to arrange to get your pamphlets, agar, or whatever you'd like in advance... (11) We all thoroughly enjoyed Tues eve.–thank you & thank you Akiko–Gordon." Address: 1224 10th St., Berkeley, California 94710. Phone: 415-524-0506.

1083. Order forms containing names and addresses of people who purchased publications or materials from New-age Foods Study Center in Aug. 1976 (Archival collection). 1976. Lafayette, California. Order forms filled out by the person who placed the order.

• ***Summary:*** BOT2 = The Book of Tofu, Vol. 2–later titled Tofu & Soymilk Production. BOM = The Book of Miso. BOM2 = The Book of Miso, Vol. 2–later titled Miso Production. TB = Tofu box. TK = Tofu Kit. NN = Natural nigari. CTE = Catalog of commercial tofu-making equipment. CKS = Catalog of koji starter for miso or shoyu.

August: Quong Hop's Co., 161 Beacon St., South San Francisco, California 94080 (BOT2, CTE). Steven Zeev Berg, c/o Caldron Restaurant, 306 E. 6th Street, New York, NY 10003 (BOT2–The book did not arrive until Nov. 1976). Peter G. Beane, Star Route, North Anson, Maine 14958 (BOT2). Doug Wasyliw, 842 E. 10th Ave., Vancouver, BC V5T 2B1, Canada (BOM2, 10 WIT, 10 WIM, 2CTE, 2CKS). Bob & Toni Heartsong, 6051 S.W. 46 Ter. [Terrace], Miami, Florida 33155 (BOM, BOT2, BOM2). Lorenz A. Schaller, South Pasadena, California 91030 (BOM2). James Hemminger, 216 E. Ella, Fayetteville, Arkansas 72701 (BOM, BOM2). Address: New-Age Foods Study Center, 790 Los Palos Dr., Lafayette, California 94549. Phone: (415) 283-3161.

1084. Ford, Frank. 1976. The simpler life cookbook from Arrowhead Mills. Fort Worth, Texas: Harvest Press. 157 p. Introduction by Fred Rohé. Index. 18 cm. [13* ref]

• ***Summary:*** The copyright page states: "First printing–Oct. 1974–23,000. Second printing–Feb. 1976–17,000. Third printing [this book], 110,000. This book is the second third edition of a book which was originally released under the title of *Pack to Nature."*

The body of the book is the same as that of earlier printings. However the 2-page directory titled "Some Natural Foods Sources" has been updated and expanded. It now lists 41 companies with full addresses and Zip codes. New additions include: Arrowhead Mills Distributing Co. (Denver, Colorado). Ceres Natural Foods (2582 Durango Dr., Colorado Springs, Colorado). Cinagro Distributors (now in Chamblee, Georgia). Earth Bound, Inc. (Woodbury, Connecticut). Earthwonder (Blue Eye, Missouri). Health Foods, Inc. (Des Plaines, Illinois). Houston Health Food Distributors (Houston, Texas). Kahan & Lessin Co. (Compton, California). Kozek Products (Los Angeles, California). Landstrom Co. (San Francisco, California). Laurelbrook Foods No. 2 (Raleigh, North Carolina). Lifestream Natural Foods (now at 1241 Vulcan Way, Richmond, BC, Canada). Manna Foods (Scarborough, Ontario, Canada). Midwest Natural Foods (Ann Arbor, Michigan). Nature's Best (El Segundo, California). Pure & Simple (795 West Hedding, San Jose, California). Shiloh Farms, Inc. Eastern Warehouse (Martindale {near New Holland}, Pennsylvania). The Wide Earth Store (Anchorage, Alaska). Tochi Products (Fargo, North Dakota).

Note: This is the earliest document seen (March 2006) that mentions Health Foods, Inc., a wholesale distributor of health foods and natural foods in Des Plaines (near Chicago). Address: Deaf Smith County, Hereford, Texas.

1085. Order forms containing names and addresses of people who purchased publications or materials from New-age Foods Study Center in Sept. 1976 (Archival collection). 1976. Lafayette, California. Order forms filled out by the person who placed the order.

• ***Summary:*** BOT2 = The Book of Tofu, Vol. 2–later titled Tofu & Soymilk Production. BOM = The Book of Miso. BOM2 = The Book of Miso, Vol. 2–later titled Miso

Production. TB = Tofu box. TK = Tofu Kit. NN = Natural nigari. CTE = Catalog of commercial tofu-making equipment. CKS = Catalog of koji starter for miso or shoyu.

September: The Nova Scotia Farm, RR#2, Hampton, NS B0S 1L0 Canada (BOM). Colorado Farm, Rt. 2, Box 188, Hotchkiss, Colorado 81419 (BOM). Ira Leviton, Corncreek whole grain bakery, 60 Elm St., S. Deerfield, Massachusetts 01378 (BOM, BOT2, BOM2). Empty Cloud [Arnold Karmody], RD 3, Canandaigua, New York 14424 (BOM, TK). Joseph G. Moser, RD1 (Corner Ketch), Downington, Pennsylvania 19335 (BOT2). Sylvia Nogaki, Island Spring, Rt. 1, Box 624, Vashon, Washington 98070 (2 x BOT2). Ceres Farms Inc. RD2, Hannibal, New York 13074 (BOM2, CTE). David Hinckle, c/o Earthbeam, 1399 Broadway, Burlingame, California 94010 (BOM2, CTE). Jimmy Udesky, [Rising Sun], 440 Judah St., San Francisco, California 94122 (BOM2, TB). Susan Gershuny, Box 207, Tivoli, New York 12583 (CTE). Ron McDowell, 466 Carl St., San Francisco, CA 94117 (TB). Alida Nijhof and Willem van Gudenaarde, Amsterdam, Netherlands (BOM, paid by Robby de Nies). Diane Murphy [Genjoji Zendo], 6283 Sonoma Mountain Road, Santa Rosa, CA 95404 (TK). Harlan D. Lundberg, P.O. Box 337, Richvale, CA 95974 (BOM, BOM2, Tapes, TK). Address: New-Age Foods Study Center, 790 Los Palos Dr., Lafayette, California 94549. Phone: (415) 283-3161.

1086. Buzzell, R.I.; Haas, J.H.; Buttery, B.R.; Anderson, L.J. 1976. Harcor soybeans. *Canadian J. of Plant Science* 56(4):973-74. Oct.

• ***Summary:*** License No. 1594. Harcor was developed by the Agriculture Canada Research Station, Harrow, Ontario. Its name was derived from Harosoy (63) and Corsoy. It was entered in the Ontario Soybean Variety Tests. Address: Research Station, Research Branch, Agriculture Canada, Harrow, Ontario, N0R 1G0.

1087. Farnum, C.; Stanley, D.W.; Gray, J.I. 1976. Protein-lipid interactions in soy films. *Canadian Institute of Food Science and Technology Journal* 9(4):201-06. Oct. [17 ref. Eng; fre]

• ***Summary:*** Microscopic studies show that yuba films consist of a protein matrix in which lipid droplets are dispersed. On a dry weight bases, soybeans contain 20.25% lipids, 36.5% proteins, and 4.7% ash. Soymilk contains 17.8% lipids, 41.85% proteins, and 6.8% ash. Yuba contains 18.0% lipids, 46.3% proteins, and 3.9% ash. Comparing the fatty acid composition of the oil in soybeans with the oil in yuba, the percentage of palmitic acid increases by 6%, stearic acid decreases by 69.7%, oleic acid increases by 2%, linoleic acid increases by 6%, and palmitic acid decreases by 19.8%. Address: Dep. of Food Science, Univ. of Guelph, Guelph, Ontario.

1088. Maurice, T.J.; Burgess, L.D.; Stanley, D.W. 1976. Texture-structure relationships in texturized soy protein. III. Textural evaluation of extruded products. *Canadian Institute of Food Science and Technology Journal* 9(4):173-76. Oct. [9 ref. Eng; fre]
Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT, Canada.

1089. Order forms containing names and addresses of people who purchased publications or materials from New-age Foods Study Center in Oct. 1976 (Archival collection). 1976. Lafayette, California. Order forms filled out by the person who placed the order.

• ***Summary:*** BOT2 = The Book of Tofu, Vol. 2–later titled Tofu & Soymilk Production. BOM = The Book of Miso. BOM2 = The Book of Miso, Vol. 2–later titled Miso Production. TB = Tofu box. TK = Tofu Kit. NN = Natural nigari. CTE = Catalog of commercial tofu-making equipment. CKS = Catalog of koji starter for miso or shoyu.

October: Hugh J. Hanlon, 323 E. 24th St., North Vancouver, BC V7L 3E9 Canada (or 219 A Lonsdale, North Vancouver, BC V7W 2E9; BOT2, BOM2, CTE). Marvel and Jean Huffman, P.O. Box 444, Lecanto, Florida 32661 (BOT2, CTE). R. Yepson, Rodale Press, 33 E. Minor St., Emmaus, Pennsylvania 18049 (BOT2). Doug Wasyliw, 295 Wallasey St., Winnipeg, MAN R3J 3C2 Canada (BOT2). Greg Weaver, 21 Girton Place, Rochester, New York 14607 (BOT2). Jay Thompson, The Zen Center, 7 Arnold Park, Rochester, New York 14607 (BOT2). David and Ann Tucker, 1022 Hudson Ave., Iowa City, Iowa 52240 (BOT2, CTE). Lionel Shapiro, 3904 16th Ave. West, Vancouver, BC V6R 3C8, Canada (BOT2). Helen Sandler, 139 Beaconsfield Rd., Brookline, Massachusetts 02146 (BOT2). Luke W.M. Lukoskie, Island Spring, Rt. 1 Box 625A, Vashon, Washington 98070 (BOT2). Thom Leonard, c/o Hemminger, 216 E. Ella, Fayetteville, Arkansas 72701 (BOT2). Earl Lepper, 30 Upton Park, Rochester, NY 14607 (BOT2). Patricia Krug, 2765 Julliard, Boulder, Colorado 80303 (BOT2). Bernard Guay, St. Theophile, rang 6, cante de Beaute, QUE, G0M 2A0 Canada (BOT2). David Briscoe, 6900 Cleveland, Kansas City, Kansas 66109 (BOT2). Timothy Cleary, 80 Riverside Dr. #136, New York, NY 10024 (BOT2). Steven Berg, c/o Hyman Berg, 2830 Ocean Parkway, Brooklyn, New York (BOT2). Cathy Bauer, P.O. Box 164, Hathaway Pines, California 95233 (BOT2). Chandler Barrett, 97 A Druid Circle N.E., Atlanta, Georgia 30307 (BOT2). Toni Heartsong, 6051 SW 46th Terr. [Terrace], Miami, Florida 33155 (BOT2). Max Sprenger, Head, Dairy R&D Section, CPC Europe, Zurich Switzerland (BOT2, BOM). Rev. M.D. Strathern, Shasta Abbey, Box 478, Mt. Shasta, California 96067 (BOM, NN, CTE). Alec Evans, c/o Welcome Home Bakery & Tofu Shop, 231 S.W. 2nd St., Corvallis, Oregon 97330 (BOM, CTE). R. Mulliner, Southeast Asia Studies, Ohio University,

Athens, Ohio (Audio casettes on tofu and miso). Charles Roberge, St.-Aime-Des-Lacs, Co. Charlevoix, QUE, Canada (BOM). Gale Randall, Indonesian Tempeh Company, RR#1, Unadilla, Nebraska 68454 (BOT2, CTE). Leslie R. Berger PhD, Prof. of Microbiology, University of Hawaii at Manoa, Honolulu, Hawaii 96822 (BOM2). Greg Mello, c/o The Zen Center, 7 Arnold Park, Rochester, New York, 14607 (BOT2). Lisbeth Christiansen, Associated Expert, NIC 74/006 Naciones Unidas, A.P. 3260, Managua, Nicaragua (BOT, BOM–introduced by Ing. Luis Raul Tovar). John Hunter, Manna Foods Inc. 112 Crockford Blvd., Scarborough, ONT, Canada M1R 3C3 (5 BOT2, 5 BOM2, 25 CTE, 25 CKS). Address: New-Age Foods Study Center, 790 Los Palos Dr., Lafayette, California 94549. Phone: (415) 283-3161.

1090. Ross (P.S.) & Partners. 1976. A study to assess the advantages and disadvantages of alternative marketing concepts for Ontario soybeans. Ottawa, ONT, Canada. 60 p. Oct. 28 cm.
• ***Summary:*** This study was commissioned by the Ontario Soybean Growers' Marketing Board of Chatham, Ontario, Canada. Address: Management Consultants, 90 Sparks St., Ottawa, ONT, K1P 5B4, Canada. Phone: 519-352-7730.

1091. Order forms containing names and addresses of people who purchased publications or materials from New-age Foods Study Center in November 1976 (Archival collection). 1976. Lafayette, California. Order forms filled out by the person who placed the order.
• ***Summary:*** BOT2 = The Book of Tofu, Vol. 2–later titled Tofu & Soymilk Production. BOM = The Book of Miso. BOM2 = The Book of Miso, Vol. 2–later titled Miso Production. WIT = What is Tofu? pamphlet. WIM = What is Miso? pamphlet. TB = Tofu box. TK = Tofu Kit. NN = Natural nigari. CTE = Catalog of commercial tofu-making equipment. CKS = Catalog of koji starter for miso or shoyu.

November: Evan Root of Erewhon, Inc., 33 Farnsworth St., Boston, Massachusetts 02210 (plus follow-up letter of 15 March 1977 from same address). Alec Evans, Welcome Home Bakery, 231 S.W. 2nd St., Corvallis, Oregon 97330 (BOT2, TK, Tofu Cassette). Ira Leviton, Corncreek whole grain bakery, 60 Elm St., S. Deerfield, Massachusetts 01378 (100 WIT, 100 WIM, TB). Lulu Yoshihara, General Delivery, Denman Island, BC, V0R 1T0, Canada (BOM2). Jean Celle (According to the Book of Tofu he started a company, however, there is no proof that it exists), Fondation Macrobiotique Vellave, 36 bis, Avenue Charles Du Puy 43700, Brives Charensac, France (BOT2, BOM2, CKS). Frank Konishi, Southern Illinois University at Carbondale, Carbondale, Illinois 62901 (BOT). Tim Redmond, Eden Foods, 4601 Platt Rd., Ann Arbor, Michigan 48104 (BOT2, BOM2, CTE, CKS). Bernadette of Lifestream Natural Food Store, 1813 West 4th Ave., Vancouver, BC V6J 1M4, Canada (50 WIT, 50 WIM). K.K. Fung, 4661 Chancellor Cove, Memphis, Tennessee 38118 (BOM, BOT2, BOM2, NN, CTE, CKS). Dr. Tsutomu Mochizuki, c/o Shinshu Miso Research Institute, 1014 Minamiagata Machi, Nagano City 380 Japan (3 BOM). Max Sprenger, Knorr Research Institute, Leutschenbachstrasse 46, CH 8050 Zurich, Switzerland (BOM, BOT2, BOM2, 3 WIT, 3 WIM, CTE, CKS). Vegetarian, Inc., 1310 W. Main, Urbana, Illinois 61801 (BOT2, 2 BOM2, NN, CTE, CKS). Wholistic Health Education Foundation, 715 Monroe Ave., Rochester, New York 14607 (BOM2, 50 WIT, 50 WIM, NN, CTE, CKS). Bruce Walker, 2131 Red Deer Road, Saskatoon, Saskatchewan, S7K 1C8, Canada (BOT2, BOM).

Note: This is the earliest document seen (July 1999) that contains the word "wholistic." Address: New-Age Foods Study Center, 790 Los Palos Dr., Lafayette, California 94549. Phone: (415) 283-3161.

1092. Order forms containing names and addresses of people who purchased publications or materials from New-age Foods Study Center in December 1976 (Archival collection). 1976. Lafayette, California. Order forms filled out by the person who placed the order.
• ***Summary:*** BOT2 = The Book of Tofu, Vol. 2–later titled Tofu & Soymilk Production. BOM = The Book of Miso. BOM2 = The Book of Miso, Vol. 2–later titled Miso Production. TB = Tofu box. TK = Tofu Kit. NN = Natural nigari. CTE = Catalog of commercial tofu-making equipment. CKS = Catalog of koji starter for miso or shoyu.

Stephen Sieh, 5146 N. 5th St., Philadelphia, Pennsylvania 19120 (BOT2). Andrew Schecter, c/o Zen Center, 7 Arnold Park, Rochester, New York 14607 (BOM2). Bill Tims, The East West Foundation, 359 Boylston St., Boston, Massachusetts (CKS). Lifestream Natural Food Store, 1813 W. 4th Ave., Vancouver, BC V6J 1M4 Canada (Pamphlets on tofu and miso). Lynette King, Teaching Japan in the Schools, Roger House, Stanford University, Stanford, California 94305 (TK). Dr. Werner G. Jaffe, Editor General, *Archivos Latinamericanos de Nutricion*, Apartado 2049, Caracas, Venezuela (BOT, BOM). Pierre Gevaert, Lima P.V.B.A., Edgar Gevaertdreef 10, 9830 St.-Martens-Latem, Belgium (3 each BOT, BOM, BOT2, BOM2, PT, PM, CTE, CKS). Address: New-Age Foods Study Center, 790 Los Palos Dr., Lafayette, California 94549. Phone: (415) 283-3161.

1093. Farm (The). 1976. Astronaut–Sister Farms. 156 Drakes Lane, Summertown, TN 38483. 1 p. Unpublished manuscript. Mimeographed.
• ***Summary:*** Gives the name and address (and in some cases the phone number) of 15 sister Farms related to The Farm in Summertown, Tennessee. They are located in: Ettrick, Wisconsin. Louisa, Virginia. Franklyn, New York. Eckert,

Colorado. Mobile, Alabama. Warner, New Hampshire. Futone, Missouri. near Hampton, Nova Scotia, Canada. Utuado, Puerto Rico. Columbia, Kentucky. San Rafael, California. Parkton, North Carolina. Wileyville, West Virginia. Lafayette, Tennessee. Nashville, Tennessee. Address: Summertown, Tennessee.

1094. **Product Name:** Vitasoy Tofu [Regular, or Pressed].
**Manufacturer's Name:** Mandarin Enterprises Ltd.
**Manufacturer's Address:** No. 13-12200 Vulcan Way, Richmond, BC, V6V 1S8, Canada. Phone: 604-270-1815.
**Date of Introduction:** 1976.
**Ingredients:** Feves de soya de provenance organique, l'eau coagulees dans du nigari (chloride de magnesium).
**Wt/Vol., Packaging, Price:** 425 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** Shurtleff & Aoyagi. 1979. July. New Tofu Shops & Soy Dairies in the West.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owner: Mr. Eng-Choo Lim.

Soyfoods Center Computerized Mailing List. 1982. Sept. 17. Owner: Mr. Eng-Choo Lim. Address listed as 11031 Bridgeport Rd., #1107, Richmond BC, Canada V6X 1T3.

Labels. 1983, dated. In French and English. "A good source of protein." Leaflet. 1989. April. "Mandarin Enterprises has been making quality soyfoods in Canada since 1976."

1095. **Product Name:** Soybean sprouts.
**Manufacturer's Name:** Pyung Hwa Food Co. Inc.
**Manufacturer's Address:** 2139 Dundas St., Toronto, ONT, M6R 1X1, Canada. Phone: 416-534-0237.
**Date of Introduction:** 1976.
**Ingredients:** Soya beans (Feves de soya), water, magnesium chloride (chlorure de magnesium), calcium sulfate (sulfate de calcium).
**Wt/Vol., Packaging, Price:** 600 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** R. Leviton. 1980. Soyfoods magazine. Summer. p. 16-17. The company is at 2139 Dundas St. "located underneath a garage and service station. Mr. Jhasun Koo's traditional-style shop, which began operation in 1976,... also makes 4,000 pounds of soybean sprouts weekly and sells them in 50-pound sacks to Oriental restaurants and groceries." He has 7 workers.

Soyfoods Center Computerized Mailing List. 1981. Jan. 22. Owner: Mr. Jhasun Koo.

Talk with Jhasun Koo, owner and founder. 1989. May 4. He started making soy sprouts in his home basement in 1976. At that time, his company had no name. It was first named Pyung Hwa Food Co. in 1978. In 1986 he moved from Dundas St. to his current address: 115 McCormack St., Toronto, ONT, M6N 1X8. Phone: 416-767-7604. Mr. Koo is Korean.

1096. **Product Name:** Tofu.
**Manufacturer's Name:** Shinbo Tofu Co.
**Manufacturer's Address:** 450 Alexander St., Vancouver, BC, V6A 1C5, Canada. Phone: 604-255-8141.
**Date of Introduction:** 1976.
**New Product–Documentation:** Shurtleff & Aoyagi. 1977. Jan. 28. Commercial Tofu Shops and Soy Dairies. Philip Saburo.

Shurtleff & Aoyagi. 1978, Dec. *The Book of Tofu* (Ballantine pocketbook edition). "Appendix B: Tofu Shops and Soy Dairies in the West." p. 399. Owner: Philip Saburo.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owner: Philip Saburo.

1097. **Product Name:** [Tofu].
**Foreign Name:** Tofu.
**Manufacturer's Name:** Soybios.
**Manufacturer's Address:** C.P. 929, 17911 Lebeau St., St. Janvier, QUE, J0N 1L0, Canada.
**Date of Introduction:** 1976.
**New Product–Documentation:** Shurtleff & Aoyagi. 1979. July. New Tofu Shops & Soy Dairies in the West. Norbert Argiles & Ron Bazar. In Sept. 1979 Norbert Argiles of Soybios ordered the book *Tofu & Soymilk Production.* The address is that shown above. This company became Unisoya.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owners: Norbert Argiles and Ron Bazar.

Fran Halter. 1984. The Gazette (Quebec). March 5. "A Committed True Believer Spreads the Word About the Curd." About Norbert Argiles of Unisoya. Talk with Yvon Tremblay and Richard Milon. 1987. Dec. 11. Unisoya was started in 1976 by Norbert Argiles. It was one of the first tofu shops in Quebec. Their tofu was sold in Montreal. Argiles worked for 10 years then burned out. He sold the company, which still exists.

1098. **Product Name:** Tofu.
**Manufacturer's Name:** Yet Chong Co.
**Manufacturer's Address:** 348 Powell St., Vancouver, BC, V6A 1G4, Canada. Phone: 604-681-2712.
**Date of Introduction:** 1976.
**New Product–Documentation:** Shurtleff & Aoyagi. 1977. Jan. 28. Commercial Tofu Shops and Soy Dairies.

Shurtleff & Aoyagi. 1978, Dec. *The Book of Tofu* (Ballantine pocketbook edition). "Appendix B: Tofu Shops

and Soy Dairies in the West." p. 399. Owner: Mr. Chong Kok.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owner: Mr. Chong Kok.

1099. Bailey, Liberty H.; Bailey, E.Z. 1976. Hortus third: A concise dictionary of the plants cultivated in the United States and Canada. New York, NY: The Macmillan Co. * Address: Cornell Univ., New York.

1100. Flengmark, Poul; Augustinussen, Erik. 1976. Dyrkning af soyabønner (Glycine max (L.) Merrill) [Growing of soyabean, *Glycine max* (L.) Merrill]. *Tidsskrift for Planteavl (Denmark)* 80(3):411-23. [15 ref. Dan; eng]
• ***Summary:*** From 1968 to 1974 seven soybean cultivars were planted at 3 sites in Denmark. The sites were Roskilde, Borris, and Roenhave. The varieties were: Portage, Dr. Donovans 052-903, and Altona (all from Canada), Fiskeby V (from Sweden), TFS 7 and TFS 10 (from France), and Warsjawska (from Poland). The first seeds were planted on 4 May 1968.

Seed yields ranged from a low of 0.52 tonnes/ha in the cultivar Portage to a high of 2.37 tonnes/ha in the cultivar Dr. Donovans 052-903. The cultivars Fiskeby V and Balestat were also suitable for growing in Denmark. Planting in mid-May generally gave higher seed yields than earlier or later planting. Planting at a depth of 2 cm in moist conditions and at 4 cm in dry conditions gave the best emergence. Planting deeper than 4 cm resulted in poor emergence. Populations of 17 and 26 plants per square meter gave seed yields of 1.58 tonnes/ha and 1.8 tonnes/ha respectively. Covering the plats with transparent and black plastic film accelerated emergence by 5-7 days and 2-4 days respectively compared with uncovered plots, but seed yield was not affected. Seed inoculation with *Rhizobium japonicum* resulted in poor development of nodules on plants growing on plots where soybeans had not been grown previously, whereas nodule development was plentiful on plots where soybeans had been grown before, whether or not the seed had been inoculated. Increasing applied nitrogen from 40 kg/ha to 120 kg/ha decreased nodule development but increased seed yields. Address: Statens Forsoegsstation, Roskilde, Denmark.

1101. Littlejohns, D.A.; Brooks, A.K.; Buzzell, R.I. 1976. Soybean production in Ontario. *Ontario Department of Agriculture and Food, Publication* No. 173. 15 p. AGDEX 141/10. [5 ref]
• ***Summary:*** This document is almost identical to one issued under the same title and number in 1971. Address: Ridgetown College of Agricultural Technology, Ridgetown, ONT, Canada.

1102. Mallard, Gwen. 1976. Soy bean magic: Delicious recipes with soy beans, flour & grits. Saanichton, British Columbia, and Seattle, Washington: Hancock House Publishers. 80 p. Index. 18 cm.
• ***Summary:*** Contents: 1. Commercially bought soy products: Soy flour, soy grits, soybean milk, soy flakes (fine, or coarse), soybean oil, soybean lecithin, soy lecithin spread (butter substitute), soy noodles, macaroni and spaghetti, soy sauce, soy coffee, roasted soy nuts, baked and green soybeans (canned). 2. Homemade soy products: Soy milk from dry beans, quick soy milk (from soy flour), soy cream (from soy flour), "soy base" (from soy flour), soy cheese from soy flour [tofu] (curded with lemon juice), oven-roasted soybeans, toasted soy flakes (coarse), toasted soy flour, sprouted soybeans. 3. Soybean recipes: Breads 'n breakfasts, soups 'n salads 'n salad dressings, soy suppers, desserts and delights.

To make soy base (p. 14): Slowly add 2 cups cold water to sifted soy flour to make a smooth paste. Stir in 1 teaspoon salt. Place in a double boiler and "cook for 30 minutes over rapidly boiling water. This mixture will be thick when it is cooked. Soy base is ideal for enriching gravies, stews, puddings, and soups. It will also make an excellent sandwich spread." Note: This is the earliest English-language document seen (April 2006) that uses the term "soy base" as a noun in this way; within 10 years the term had acquired a different meaning.

On the rear cover is a biography of Gwen Mallard by Derrick Mallard, her husband. She was born in 1917 in Fernie, British Columbia; she lived with her parents and three brothers in a log cabin in the beautiful Elk Valley among Canada's majestic Rocky Mountains. In 1971 she helped launch a campaign against plans for shipping oil in Alaskan tankers along the coast of British Columbia with the inherent dangers of disastrous oil spills (Note: On 24 March 1989 the tanker Exxon Valdez ran aground and spilled 11 million gallons of heavy crude oil in Alaska's pristine Prince William Sound–the world's worst oil spill in history). Gwen runs a small health food store and restaurant 14 miles north of Victoria, British Columbia. Address: British Columbia, Canada.

1103. Neufeld, Don F. 1976. Seventh-day Adventist encyclopedia, 2nd ed.: Loma Linda Foods. Washington, DC: Review and Herald Publishing Assoc. 1640 p. See p. 797-98.
• ***Summary:*** "A nonprofit corporation manufacturing and distributing health foods in the United States and Canada. It is owned and operated by the General Conference of Seventh-day Adventists for the purposes of (a) furthering by all proper means a better knowledge of the laws of healthful living, (b) manufacturing and selling healthful foods and related products, and (c) encouraging and supporting benevolent, educational, and religious enterprises of the

SDA Church. The main office, factory, and headquarters are at 11503 Pierce Street, Riverside, California; the second factory (featuring the production of soy milk in liquid and powdered form) is on Wooster Road, Mount Vernon, Ohio.

"Products include vegetarian protein foods (canned and frozen), soy milk, cereal coffee, gravy mixes, and canned soy beans.

"History. Forerunner of Loma Linda Foods was the Loma Linda Sanitarium bakery, which began operation in 1905. It was called The Sanitarium Food Company and its plant was situated on Anderson Street in Loma Linda. At first it manufactured a variety of breads and wafers, but it soon added other health food items. On Feb. 6, 1933, the name 'Loma Linda Food Company' was adopted, and on July 1, 1935, the first articles of incorporation were filed for a perpetual, nonprofit organization with a 12-member board of directors... On Nov. 14, 1937, groundbreaking ceremonies for a factory building were held on a nine-acre site donated by the Southern California Junior College (now La Sierra College) at Arlington (Riverside). The new factory began operations on July 16, 1938, the main product being Ruskets, a flaked whole-wheat biscuit cereal, but later more than 30 other products were added, the main emphasis being upon the development and perfection of high-protein foods of vegetable origin. The company also distributed related food items processed and packaged by others under the Loma Linda Foods label.

"On Jan. 1, 1951, Loma Linda Foods took over the business of the International Nutrition Laboratories, Inc., Mount Vernon, Ohio, purchased from Harry Willis Miller, M.D. Charles Percy Miles was named manager. The Canadian Division of Loma Linda Foods was established at Oshawa, Ontario, in 1962, on a site donated by Oshawa Missionary College (now Kingsway College). Frank L. Wessely was appointed its manager. It was closed in 1965.

"Loma Linda Foods has afforded financial support to the Seventh-day Adventist Dietetic Association and has provided fellowships to selected postgraduates of the School of Dietetics of Loma Linda University. By Jan. 1, 1965, it had also contributed to the denominational mission program more than $300,000, through the Loma Linda Foods label-saving plan for Sabbath school Investment.

*"General Managers:* G.T. Chapman, 1938-1962; C.P. Miles, 1963-1973; M.E. Dake, 1973." Address: Washington, DC.

1104. Siegel, Alvin; Fawcett, Brian. 1976. Food legume processing and utilization (with special emphasis on application in developing countries). Ottawa, Canada: International Development Research Center. 88 p. No index. 25 cm. [110 ref]
• ***Summary:*** Contents: Introduction. Traditional processing and utilization: Legume processing terminology, home-scale processing, commercial-scale processing. Processed legumes by new and improved technologies: Milled pulses, decorticated legumes, quick-cooking legumes, legume powders, legume protein concentrates. By-product utilization of legume processing. Summary and conclusion. Tables. References. Address: Agriculture, Food and Nutrition Sciences Div., International Development Research Centre, Ottawa, Canada.

1105. Tannenbaum, Steven R. 1976. Production and use of protein concentrates. In: N.S. Scrimshaw and M. Behar, eds. 1976. Nutrition and Agricultural Development: Significance and Potential for the Tropics. New York and London: Plenum Press. xxiv + 500 p. See p. 473-86. Chap. 40. With comments by A.D. Odell. Proceedings of the 14th International Biological Symposium, held 2-6 Dec. 1974 at Guatemala City, Guatemala. Proceedings of the 14th International Biological Symposium, held 2-6 Dec. 1974 at Guatemala City, Guatemala. [12 ref]
• ***Summary:*** Contents: Introduction. Oilseeds: Soybeans, other oilseeds. Marine protein concentrates. Single-cell protein. Use of protein concentrates in food products. Conclusions. References. Comment by Arthur D. Odell of Industrial Grain Products, Montreal, Canada: Vegetable proteins. Marine protein concentrates. Single-cell proteins. Address: Dep. of Nutrition & Food Science, MIT, Cambridge, Massachusetts.

1106. *U.S. General Accounting Office, Annual Report of the Comptroller General.*1976. Grain marketing systems in Argentina, Australia, Canada, and the European Community; soybean marketing system in Brazil. IN-76-61. 87 p. *
• ***Summary:*** In: U.S. Congress, Senate Committee on Foreign Relations–Multinational Corporations & U.S. Foreign Policy. Hearings. Part 16, p. 287-382.

1107. Vermeer, J. 1976. Government policies affecting the production, marketing, and prices of soybeans. In: L.D. Hill, ed. 1976. World Soybean Research [Conference I: Proceedings]. Danville, Illinois: Interstate Printers and Publishers, Inc. xvii + 1073 p. See p. 671-83.
• ***Summary:*** Contents: World soybean production. Kinds of policies. U.S. policies. Brazilian policies. Policies of the People's Republic of China. Japanese policies. Policies of the European Community. Policies of Canada. Policies of Australia. Summary. Address: Asst. Director, Commodity Economics Div., ERS USDA, Washington, DC.

1108. Wang, H.L.; Mustakas, G.C.; Wolf, W.J.; Wang, L.C.; Hesseltine, C.W.; Bagley, E.B. 1976. An inventory of information on the utilization of unprocessed and simply processed soybeans as human food. Peoria, Illinois: USDA Northern Regional Research Center, Interdepartmental

Report. AID AG/TAB-225-12-76. 197 p. AID contract report. Undated. No index. 27 cm. Spiral bound. [65 ref]
• ***Summary:*** Contents: Introduction. Home and village traditional soybean foods by country. 1. Soybean food uses and production in Asia. Soaking dry soybeans. In China: Tou chiang (soybean milk; preparation, ways of serving), tou fu (soybean curd; yen-lu is the Chinese name for nigari), tou fu nao (soft curd), tou fu kan (dry / firm bean curd), chien chang (pressed tofu sheets), yu tou fu (fried tou fu), tung tou fu (frozen tou fu), tou fu pi (protein-lipid film; yuba), huang tou ya (yellow bean sprout or soybean sprout), mao tou (hairy bean, green soybean, or immature soybean), dry soybeans (roasting and frying, stewing and boiling), roasted soybean flour. Fermented soybean foods. Production and consumption of soybeans (China and Taiwan).

Japan: Tofu (soybean curd), kinugoshi tofu, processed tofu products (aburage or age, nama-age and ganmo), kori tofu (dried-frozen tofu), yaki tofu (grill tofu), yuba (protein-lipid film), soybean milk, gô (ground soybean mash), daizu no moyashi (soybean sprouts), edamame (green vegetable soybeans), whole soybeans, kinako. Fermented soybean foods: Production and consumption.

Korea: Tubu (soybean curd), soybean sprouts, whole soybeans (green soybeans, parched or roasted soybeans, boiled soybeans), soybean flour, soysauce, bean paste [Korean soybean miso], natto, production and consumption of soybeans.

Indonesia: Tahu or tahoo (soybean curd), bubuk kedele (soybean powder), tempe kedele, tempe gembus [the name in Central and East Java for okara tempeh], oncom tahu [the name in West Java for okara onchom], other soybean products (soybean sprouts, green soybeans, roasted and boiled soybeans, kecap or soysauce, tauco or bean paste [miso]), food mixtures (Saridele, Tempe-fish-rice or TFR, Soy-rice baby food, soybean residue [okara]-fish-rice), production and consumption of soybeans.

Thailand. Philippines: Soybean sprouts, soybean coffee, soybean cake (made from equal amounts of soybean flour and wheat flour), soybean milk, tou fu and processed tou fu products, production and consumption. Burma. India. Malaysia. Nepal. Singapore. Sri Lanka (Ceylon). Vietnam. West Asia [Middle East; Iran and Turkey]. References–Soybean food uses in Asia.

2. Soybean food uses and production in Africa. Ethiopia: Injera, wots and allichas, kitta, dabbo, dabokolo, porridge. Kenya. Morocco. Nigeria: Whole soybeans, soybean paste, corn-soy mixtures (soy-ogi). Tanzania. Uganda. Production. References–Soybean food uses in Africa.

3. Soybean food uses and production in Europe [both Eastern and Western]. 4. Soybean food uses and production in Latin America. Argentina. Bolivia. Brazil. Chile. Colombia. Ecuador. Guyana. Paraguay. Peru. Uruguay. Venezuela (fried arepas with textured soy). Mexico: New village process, commercial developments of soy-based food products, Gilford Harrison, Ruth Orellana, Seguras Social. Honduras. Costa Rica. Panama. Dominican Republic. Jamaica. Haiti. Trinidad. References–Soybean food uses in Latin America.

5. Soybean food uses and production in North America. United States: Oriental populations, vegetarian communes, The Farm in Tennessee. Canada. References–Soybean food uses in North America. 6. Soybean food uses in Oceania. Australia. New Zealand. 7. Summary of soybean food uses. Traditional soybean foods: Soybean milk, soybean curd and processed soybean curd products, protein-lipid film, soybean sprout, tempe (tempeh), green soybeans, boiled soybeans, roasted soybeans, soybean flour, soysauce, fermented soybean paste, fermented whole soybeans [Toushih, hamanatto], natto, fermented soybean curd. Experimental soybean foods: Whole soybean foods, soybean paste, soy flour, soy beverage. Production and consumption.

8. Recent simple soybean processes, other than traditional. Simple village process for processing whole soybeans: Equipment, process, sanitation requirements, quality of product, evaluation of product in formulas and procedures for family and institutional use in developing countries. NRRC village process. Foods from whole soybeans developed at the University of Illinois (drum dried flakes, canned and homecooked soybeans, soy beverages and beverage products, spreads, snacks).

Ways of cooking and serving soybeans in the American diet. 9. Industrial processes. Industrial production and selling prices of edible soybean protein products. 10. Barriers to acceptability and utilization of soybeans in food and research recommendations: Availability. Cultural and social factors. Texture. Flavor. Nutrition and food safety. Technology development. Technology transfer. Research recommendations [concerning each of the above barriers].

Concerning Morocco: Cereal-soy blends have been used extensively in Morocco; in fiscal year 1974 some 14.7 million lb were shipped to Morocco. Mmbaga (1975) reported that soy flour is being used in making porridge, with 1 part soy flour to 3 parts maize / corn flour.

Tables show: (1) Soybean production and imports in Taiwan, 1962-1975 (tonnes = metric tons, p. 33). Production rose from a 53,000 tonnes in 1962 to a peak of 75,200 tonnes in 1967, then fell to 61,900 tonnes in 1975. Imports skyrocketed from 62,400 tonnes in 1962 to a record 827,300 tonnes in 1975. (2) Consumption of soybean foods in Taiwan, 1964-1974 (kg/capita/year, p. 34). Total soybean foods not including tofu rose from 1.08 kg in 1964 to a peak of 2.61 kg in 1972 then fell to 1.99 kg in 1974. Consumption of tofu (80% water) rose from 18.75 kg in 1964 to a peak of 33.89 kg in 1972, then fell to 32.04 kg in 1974. (3) Supply and disposition of soybeans in Japan,

1971-1974 (p. 49). Total supply is beginning stocks, plus domestic production, and imports. Total disposition is crushing, plus traditional foods and feed. In 1974 imports accounted for 87.5% of the supply, and crushing accounted for 71.0% of the disposition. (4) Whole soybeans used in the production of traditional foods in Japan, 1970-74 (tonnes / metric tons, p. 50). Tofu and others rose from 508,000 in 1970 to 539,000 in 1974. Miso rose from 177,000 in 1970 to 192,000 in 1974. Shoyu rose from 13,000 in 1970 to 14,000 in 1974. (5) Defatted soybean meal used in the production of traditional foods in Japan, 1970-74 (tonnes / metric tons, p. 51). Shoyu rose from 163,000 in 1970 to 176,000 in 1974. Tofu and others was constant at 130,000 from 1971 to 1973. Miso decreased from 4,000 in 1970 to 2,000 in 1974. (6) Production of traditional soybean foods in Japan, 1970-74 (tonnes / metric tons, p. 52). Tofu and others rose from 1,867,800 in 1970 to 2,264,900 in 1973. Shoyu rose from 1,334,1000 in 1970 to 1,455,800 in 1974. Miso rose from 552,200 in 1970 to 587,200 in 1974. (7) Production and food use of beans [various types] and consumption of some soybean products in Korea, 1964-1967 (p. 56-57). In 1967 consumption (in tonnes / metric tons) was: Bean curd 290,000. Bean sprouts 270,000. Bean sauce 69,700. Bean paste 27,700. Total: 11.6 kg per capita per year. (8) Soybean production in Indonesia, 1960-1974 (p. 65). It rose from 442,862 tons in 1960 to 550,000 tons in 1974. (9) Consumption of soybeans in various parts of Indonesia in 1970 (p. 66). (10) Production of soybean foods in the province of Central Java, 1968-1972 (tons, p. 67). Kecap rose from 914,695 in 1968 to 1,524,000 in 1972. Tahu decreased from 18,570 in 1978 to 17,000 in 1972. Tempe rose from 506 in 1968 to 39,000 in 1972. (11) Area planted to soybeans and total soybean production in Thailand, 1964-1974 (p. 70). Area rose from 213,000 rais (6.25 rais = 1 ha) in 1964 to 1,016,000 rais in 1974. Production (in metric tons) rose from 31,300 in 1964 to 252,400 in 1974. (12) Utilization of soybeans by soybean-consuming countries, 1964-66 (based on FAO 1971 Food Balance Sheets, 1964-66 average, p. 150). The countries leading in per capita consumption (kg/person/year) are: China (PRC) 6.7. Japan 5.1. Korea(s) 5.0. Singapore 4.3. Indonesia 2.8. Malaysia 2.6. Taiwan (ROC) 1.1. (13) Amounts of cereal-soy blends distributed under Title II, Public Law 480 in fiscal year 1974 (p. 152-155). (14) U.S. exports of full-fat soy flour, 1974-75 (p. 156).

Note: This is the earliest English-language document seen (Feb. 2004) that uses the word “tubu” to refer to Korean-style tofu. Address: Northern Regional Research Center, Agricultural Research Service, Department of Agriculture, Peoria, Illinois 61604.

1109. Allis-Chalmers Corp. 1976? More from less (Motion picture). Milwaukee, Wisconsin. 27 minutes. Reviewed in Soybean Digest, June 1976, p. 36. *

• ***Summary:*** No-tillage farming and the latest crop-planting innovations is the subject of this 27-minute documentary film recently released by the agricultural equipment division of the Allis-Chalmers Corp. The moderator is Professor Shirley Phillips, one of the early researchers in no-tillage farming, of the University of Kentucky. Harry Young of Christian County, Kentucky, a pioneer in no-tillage farming, is among those featured. The film includes a panel discussion on the broad acceptance of no-tillage farming in many areas throughout the USA and Canada.

1110. Muso Shokuhin. 1976? Distributors of Muso foods in Canada, South America, Europe, and Australia (Leaflet). Osaka, Japan. 1 p. Undated.

• ***Summary:*** The name, address, and phone number of each company is given. Canada: Lifestream Natural Food, Inc. (British Columbia). Manna Foods, Inc. (Ontario).

South America: Zentro Macrobiotico de Venezuela.

Europe: Societe Traplun (France). Unimave S.C.A.R.L. (Portugal). Urtekram (Denmark). V.Z.W. Voedselcollektief (Belgium). Manna (Holland). Centro Dietetico Macrobiotico Italiano (Italy). Centro Macrobiotico Italiano (Italy). Harmony Foods (England). Kameo (France). P.V.B.A. Lima (Belgium). Moder Jord & Söner (Sweden). Reformhaus Rahlstedt (West Germany). Schwarzbrot (West Germany). Dr. Naturopata SER (Spain). Eduardo Galamba De Sa Pires (Portugal).

Australia: True Health Aides Pty. Ltd. (Sydney). Address: 1-43 Otedori, Higashi-ku, Osaka, Japan. Phone: (06) 945-0511.

1111. Associated Press (AP). 1977. Food poisoning takes 69 lives. *Daily Colonist (Victoria, BC, Canada).* Jan. 9. p. 28, col. 5.

• ***Summary:*** “Sixty-nine persons died and 265 others in East Java were in hospital for food poisoning after eating tempe, a local dish made from soy beans, the daily newspaper *Kompas* reports.”

Note: The tempeh that killed these people was probably tempe bongkrek, made from shredded coconut presscake rather than from soybeans. There are no known reports of soybean tempeh being toxic, but many reports of coconut presscake being toxic.

1112. Stewart Seeds. Div. of Ciba-Geigy Seeds Ltd. 1977. It all started with Dr. C.A. Zavitz 1863-1942... the Crop Science Department of the Ontario Agricultural College of the University of Guelph. *Stewart Seed Science* 3(1):1, 6. Supplement to Farm and Country (Jan. 18).

• ***Summary:*** Contains a nice history of the pioneering work of Dr. Zavitz. “This giant among plant scientists will be long remembered, not just in Guelph, but across Ontario, Canada and the United States, for plant breeding success that may never be equalled.”

"At one time *90% of the barley acreage on Canada was* O.A.C. 21.

"The mention of just a few of the many contributions to agriculture made by Dr. Zavitz, is to illustrate the stature and talent, maybe even genius, of an outstanding Canadian. He was instrumental in the founding of the Ontario Agricultural and Experimental Union in 1886. This idea was adopted in the United States, and in Ontario has become the Soils and Crops Branch of OMAF. He was one of the prime movers in the development of the Canadian Seed Growers' Association. He was the first Canadian to receive a Fellowship in the American Society of Agronomy. He introduced soybeans to Canada in 1892, and developed the first soybean variety ever licensed in Canada, O.A.C. 211. And the list goes on and on... Canadian Agricultural Hall of Fame, Honorary Degrees, the development of hardy alfalfa varieties, improvements in potato production, and more... much more. Indeed Dr. Zavitz established the plant science foundation upon which a succession of talented people have continued to build."

Some of the dedicated crop scientists who have followed Dr. Zavitz include Dr. O.M. McConkey, Dr. D.N. Huntley, and Dr. J.W. (Jack) Tanner. A large color photo shows Dr. Tanner, presently Chairman, Dept. of Crop Science.

Soybean varieties from Stewarts (including a brief description of each): Beechwood, Nairn, Evans, Harlon, and Harcor.

Concerning the soybean variety Evans: "A good yielder in the 2700 heat unit range [Group 1]. Short growing, large seeded with good lodging resistance. Resistance to Phytophthora rot." Note: The variety Evans was named after John W. Evans, a leader in founding the Minnesota State Soybean Association; it was not named after Edward E. Evans, the pioneer soybean breeder from Michigan. Address: Ailsa Craig, Ontario N0M 1A0. Phone: (519) 293-3211.

1113. *Canadian Adventist Messenger.*1977. Ten Talents cookbook not recommended. Feb. 1. p. 4.
• ***Summary:*** "The cookbook *A Good Cook, Ten Talents* has been placed on the not recommended book list by the General Conference Health Department. A review by dietitians, pharmacists and physicians has found the nutritional and medical information contained in the book to be generally unsound and in several instances actually dangerous.

"Persons using this cookbook are advised to view with caution any nutritional statements or medical advice which it contains. Especially dangerous are the recommendations regarding formulas and foods for infants and small children, certain herbal remedies (some of which are poisonous), the listing of several plant foods as 'valuable' sources of Vitamin B-12 or Vitamin D, and the recommendation that apricot kernels be added to soy milk to improve the flavor (apricot kernels are poisonous).

"For further information, please contact: Ella Mae Stoneburner, R.N., M.S., Associate Director, Dept. of Health, General Conf. of Seventh-Day Adventists, 6840 Eastern Ave., N.W., Washington, DC 20012."

1114. *Windsor Star (Essex County, Ontario, Canada).*1977. April building start for Maple Leaf plant. Feb. 11.
• ***Summary:*** "Construction of Maple Leaf Mills' $37 million soybean crushing and processing plant could start in April but some delays are holding up a separate project for federal grain elevators. Mayor Bert Weeks said today."

1115. Schisler, Lee C.; Volkoff, Olga. 1977. The effect of safflower oil on mycelial growth of Boletaceae in submerged liquid cultures. *Mycologia* 69(1):118-25. Jan/Feb. [9 ref]
• ***Summary:*** The addition of small amounts of safflower oil (2.5 ml/liter) to liquid media stimulated mycelial growth of species of mushrooms tested. One ingredient in the standard medium used for isolation of Boletaceae is Soytone (p. 119). Note: This article does not explain what Soytone is or what it is made of. Address: 1. Dep. of Plant Pathology, The Pennsylvania State Univ., University Park, PA 16802; 2. Dep. of Botany, The Univ. of British Columbia, Vancouver, BC, Canada V6T 1W5.

1116. Eskin, N.A. Michael; Grossman, S.; Pinsky, A. 1977. Biochemistry of lipoxygenase in relation to food quality. *Critical Reviews in Food Science and Nutrition* 9(1):1-40. April. [268 ref]
• ***Summary:*** An extensive review of lipoxygenase in relation to food quality. This enzyme has been recognized since the late 1920s. It is well known for the variety and intensity of undesirable flavor it can produce from its normal substrate, linolenic acid. Address: 1. Dep. of Foods and Nutrition, Univ. of Manitoba, Winnipeg, Manitoba, Canada; 2-3. Bar-Ilan Univ., Ramat-Gan, Israel.

1117. Khan, A. Waheed; Cowen, Donna C. 1977. Rapid estimation of muscle proteins in beef-vegetable protein mixtures. *J. of Agricultural and Food Chemistry* 25(2):236-38. March/April. [10 ref]
Address: Div. of Biological Sciences, National Research Council of Canada, Ottawa, ONT, Canada K1A 0R6.

1118. Iso, James Y. 1977. Japan looks to the U.S. for more food-quality soybeans. *Foreign Agriculture.* May 16. p. 6, 16.
• ***Summary:*** When the People's Republic of China (PRC) cut back on its soybean exports last year because of a poor domestic harvest and disruption of marketing channels by the devastating earthquake, Japanese manufacturers of miso,

tofu, and other native soy foods were among the first to feel the pinch, having traditionally bought large quantities of PRC soybeans. Their shift could lead to perhaps a 100,000-ton gain in U.S. exports of food-quality soybeans to Japan.

"In 1976, the U.S. shipped about 520,000 tons of these food-use soybeans to Japan out of total U.S. soybean sales there of 3.2 million tons and Japan's total soybean imports of 3.5 million. Japan received another 132,000 tons of food beans from the PRC and a few thousand tons from other supplying countries.

"Adding to this a domestic production of 60,000 tons puts Japan's total soybean use in traditional foods last year at about 750,000 tons.

"Each year, Japan uses about 720,000 tons of soybeans in traditional foods, including roughly 350,000 tons of tofu (bean curd), 180,000 of miso (bean paste), and 70,000 of natto (fermented beans). The remaining tonnage goes into other native products, such as kinako (processed [dry roasted] beans) and frozen tofu, and into fresh soybean consumption.

"Manchurian beans, produced in the colder regions of North China (usually north of 43º latitude), have long been considered the best tasting for fermented foods like miso and natto."

"Outside of the PRC, the varieties of beans preferred by the food manufacturers are found in colder climates, such as Canada and the northern regions of the United States." Several "Japanese trading firms involved in importing food-type beans have come to prefer soybeans produced in Indiana, Illinois, Ohio, and Michigan. These beans, known among the trade as IOM (Indiana, Ohio, Michigan) beans, made up close to 500,000 tons of the food beans imported by Japan last year and go largely into tofu and related foods." Note: This is the earliest English-language document seen (Jan. 2008) that uses the abbreviation "IOM" in connection with soybeans.

"Around 55,000 tons of 'identity-preserved' varieties also were imported last year." Producers are looking for a large bean with a white hilum and high protein and carbohydrate content. All food beans must be #1 grade quality. Talks with miso/natto manufacturers have revealed that U.S. varieties Amsoy, Corsoy, Kanrich, and Beeson meet this general description. However, a bean with all the desired features comparable to the PRC's, particularly as related to taste, is not as yet commercially available in the U.S. Address: Foreign Market Development, Oilseeds and Products, Foreign Agricultural Service.

1119. Gupta, C.B.; Eskin, N.A.M. 1977. Potential use of vegetable rennet in the production of cheese. *Food Technology* 9(2):62-66. May. [10 ref]
• ***Summary:*** Many plant proteases are capable of clotting milk although the majority proved unsuitable for cheese production. The juice of the ash gourd *(Benincasa cerifera)* however gives good results. Address: Dep. of Foods and Nutrition, Univ. of Manitoba, Winnipeg, Manitoba R3T 2N2, Canada.

1120. Shields, Bill. 1977. Vegetable oil plant to begin production in fall of '78. *Windsor Star (Essex County, Ontario, Canada).* June 29. p. 3-4.
• ***Summary:*** William G. Milliken, president of Maple Leaf Monarch Company, said his vegetable oil processing plant and refinery now under construction on 40 waterfront acres, is scheduled to begin production in the fall of 1978. It will be the largest integrated vegetable oil plant in Canada, and is expected to stimulate Ontario soybean production. Lever Brothers is the largest margarine manufacturer in Canada. The deodorized and hardened oils and fats from the Windsor plant will be use in the production of margarine, shortening, salad and cooking oils. Refined technical oils will be used in the manufacture of paints and varnishes, printing inks, plastics and caulking compounds.

An illustration (architectural drawing) shows Maple Leaf Monarch's vegetable oil mill and refinery. Address: Star's Business Editor.

1121. Stanley, D.W. 1977. Foods for the future. *Notes on Agriculture (Guelph, Ontario)* 13(2):29-30. June.
• ***Summary:*** The world's number one problem is not, as some believe, dwindling fossil fuel supplies, but rather that the world's population is expected to double in the next 30 years, reaching some 7 billion by the year 2000. "Currently, the limiting nutrient in human feeding is protein... Oilseeds are an excellent source of protein." Soybeans are the oil seed most widely used as a protein source for diets. Vegetable protein processing is the focus of much research in the Department of Food Science at the University of Guelph. Texturized vegetable proteins, one of the foods of the future, are most widely made using thermal extrusion. During the 1971-72 school year about 23 million pounds of soy protein were used in the U.S. school lunch program. Address: Dep. of Food Science, Ontario Agricultural College, Univ. of Guelph, ONT, Canada.

1122. Harwood, Maureen. ed. 1977. The Lifestream cookbook. Richmond, BC: Lifestream Natural Foods Ltd. 52 p. Illust. by Elizabeth Scott. Index. 22 cm.
• ***Summary:*** Contents: Nutritional information: Protein and the vegetarian diet. Grains. Whole grain pasta. Beans. Tofu. Corn tortillas. Flakes and cereal. Whole grain flour. Seeds and sprouts (Alfalfa seeds, mung beans, lentils, sunflower seeds–unhulled, chick peas, fava beans, soybeans, wheat kernels, alfalfa seeds in Vita salad, sesame seeds in gomasio, pumpkin seeds), Nut butters and miso (incl. Miso honey dressing, Miso soup). Cashew butter & Engevita yeast. Dried fruit. Carob. Address: [Richmond, BC, Canada].

1123. Jaeger, Martin. 1977. Pricing and marketing soybeans. *Ontario Ministry of Agriculture and Food, Factsheet* No. 77-033. AGDEX 141/840. July. Revised, Aug. 1979, and Aug. 1981.
• ***Summary:*** Revision of Factsheet "Pricing soybeans," Dec. 1973. Address: Economics Branch.

1124. Stern, N.J.; Hesseltine, C.W.; Wang, H.L.; Konishi, F. 1977. *Lactobacillus acidophilus* utilization of sugars and production of a fermented soybean product. *Canadian Institute of Food Science and Technology Journal* 10(3):197-200. July. [12 ref. Eng; fre]
• ***Summary:*** Eight strains of *Lactobacillus acidophilus*, obtained from the ARS (Agricultural Research Service) culture collection, were tested for their ability to use monosaccharides (fructose, galactose, glucose and D (+) mannose), disaccharides (lactose, maltose and sucrose) and two oligosaccharides (raffinose and stachyose). As judged by titratable acidity and pH changes during growth, strain variation existed in the ability of the microorganisms to utilize the sugars. Strain NRRL B-1910 was a superior utilizer of raffinose and stachyose as measured by medium pH changes. Therefore, B-1910 was selected as inoculum for the successful production of a yogurt-like soybean product, which has potential as a good protein food source. Address: NRRC, Peoria, Illinois 61604.

1125. *Canadian Adventist Messenger.*1977. Ten Talents cookbook. Sept. 1. p. 14.
• ***Summary:*** There was an article about the *Ten Talents* cookbook in the Feb. 1 issue of this periodical. Discusses a controversy concerning a news release about the book. "It is understood that *Ten Talents* is not stocked in the Adventist Book Centres in Eastern and Western Canada. However *Ten Talents* is presently being re-edited to clarify information on some of the controversial areas mentioned in the February 1 article. The revised edition is available from Dr. and Mrs. F.J. Hurd, Box 86-A, Route 1, Chisholm, Minnesota 55719."

1126. *Soybean Digest.*1977. What is the competition up to? Sept. p. 14h-14j, 14l.
• ***Summary:*** Discusses the grain (mostly wheat) and oilseed (mostly soybean) marketing systems in the following countries (summarized from a report by the U.S. Comptroller General's office): Canada, Australia, Argentina, Brazil, and the European Community.

Brazil currently produces about one-third as many soybeans as the USA. Cooperatives dominate the national marketing system in Brazil. Though the government has set minimum price levels (announced 2 months before planting time) high enough to guarantee producers a profit, world prices have been such that support prices have been unnecessary. Credit is available from the government up to 80% of the support price. Even though Brazil's export and domestic soybean trade is in private hands, the government exercises strong regulatory power over the trade.

"The European Community was first formed in 1957 with Germany, France, Italy, Belgium, The Netherlands and Luxembourg agreeing to integrate their agricultural community programs. In 1973, Denmark, Ireland and the United Kingdom also became members.

"The agricultural goal for the European Community is to stabilize commodity prices at levels that afford producers fair returns while assuring adequate supplies at reasonable prices for consumers. It is nearly impossible to have an agriculture program that will satisfy both producers and consumers; in the European Community countries the bias is in favor of the producer. There are many complaints by consumers that the price supports are too high, the program too costly and that the program fosters inefficient production. The domestic price is protected by levies and duties on imports.

"The agriculture policy is financed through a European community guarantee fund financed by the levies and duties collected and by assessments... The European Community, even with the intra-European Community trade, still imports about 25% of its agricultural commodities and products. The European Community is the largest importer of agricultural commodities in the world and the largest U.S. customer."

1127. Shurtleff, William. comp. 1977. Large natural food distributors, health food distributors, and book distributors in North America. Lafayette, California. 1 p. Undated. Unpublished typescript.
• ***Summary:*** Most of the following companies are presently distributing *The Book of Tofu, The Book of Miso* and *The Book of Kudzu* published by Autumn Press. For each, the company name (listed alphabetically) and address are given:

Large natural food distributors (28): Arrowhead Distributing (Denver, Colorado), Beautiful Foods (Philadelphia, Pennsylvania), CC Grains (Seattle, Washington), Chico-San Inc. (Chico, California), Clear Eye (Rochester, New York; $3 million/year in sales), Dari Farms Natural Foods (Tolland, Connecticut), Eden Foods (Ann Arbor, Michigan; Phone: 313-973-9400. Tim Redmond, Michael Potter), Erewhon (Cambridge, Massachusetts; Phone: 617-354-2001. John Fogg, President), Erewhon West (Vernon, California; Phone: 213-582-6144. James Silver), Japan Food Corp. (JFC–South San Francisco, California; also in New York), Laurelbrook Foods (Raleigh, North Carolina), Llama Trading Co. (Greenfield, Massachusetts), Midwest Natural Foods (Ann Arbor, Michigan), Pure and Simple/The Well (San Jose, California; Pure & Simple changed to 1045 Pepitone, San Jose, CA 95110; Jon Hoefler), Rainbow Distributing (Denver,

Colorado), Reality Natural Foods (Haleiwa, Oahu, Hawaii), Redwood Natural Foods (3245 Santa Rosa Ave., Santa Rosa, California; Greg Hartman. Phone: 707-546-5878). Rock Island Foods (Ignacio, California), Shadowfax (Binghamton, New York), Starflower (Eugene, Oregon), Tree of Life (Augustine, Florida), United Naturals (Eureka, California), Westbrae (Emeryville, California), Lifestream Natural Foods (Vancouver, British Columbia, Canada), Manna Foods (Scarborough, Ontario, Canada).

Large health food distributors (8–also carry books): Akin (Tulsa, Oklahoma), Akin Southeast (Jacksonville, Florida), Balanced Foods (Bergen, New Jersey), Collegedale Distributors (Collegedale, Tennessee), Foods for Health (Phoenix, Arizona), Health Foods Inc. (Des Plaines, Illinois), Kahan and Lessin (Los Angeles, California), Natures Best (El Segundo, California).

Large booksellers [distributors] (3): Nutribooks Corp. (Denver, Colorado), Bookpeople (Berkeley, California), Landstrom (South San Francisco, California).

1128. Larmond, Elizabeth. 1977. Laboratory methods for sensory evaluation of foods. *Canada Dept. of Agriculture, Publication* No. 1637. 73 p. *
• ***Summary:*** Contains the "Hedonic Scale." 9 = like extremely. 8 = like very much. 7 = like moderately. 6 = like slightly. 5 = neither like nor dislike. 4 = dislike slightly. 3 = dislike moderately. 2 = dislike very much. 1 = dislike extremely. This 9-point scale, the most widely used one, has been in use for many years. It was originally developed by the Army Quartermaster Corps at Natick, Massachusetts. An 8 point scale (omitting number 5), and a seven point scale (omitting numbers 4 and 6) are also used. A ten point scale is almost never used.

To do statistical analysis, if you have more than two samples, use an analysis of variance. If you have just 2 samples, you can use a T-test. Address: Food Research Inst., Ottawa, ONT, Canada.

1129. Soldati, A. 1977. Forschungsarbeiten auf dem Gebiet der Sojabohne in den USA und Kanada [Research work in the field of soybeans in the USA and Canada]. Rapporto interno, Institut fuer Pflanzenbau ETH, Zurich, Switzerland. 40 p. Unpublished typescript. [Ger]*

1130. Taysi, V.; Schuster, W.; Sepet, H.; Posselt, U. 1977. Die Leistungen von Sojabohnensorten unterschiedlicher Provenienz unter ost-mediterranen und west-europaeischen Klimaverhaeltnissen [The productivity of soybean cultivars grown under east Mediterranean and west European climatic conditions]. *Zeitschrift fuer Acker- und Pflanzenbau (J. of Agronomy and Crop Science)* 144:311-24. [8 ref. Ger; eng]
• ***Summary:*** In 1972 and 1973, nine soybean varieties / cultivars (2 from Germany, 2 from Canada, 3 from the USA, one from South Africa, and one from Rumania) were tested in field trials at two locations: Gross-Gerau (Rhein-Main Region) and Izmir (West Anatolia, Turkey). The yields of seed were relatively low at both sites. Large differences in yield occurred between the varieties. At Izmir, the earlier varieties Caloria, Gieso, and Altona, as well as the later variety Beeson gave their highest production in a July planting. This means that these varieties are particularly for cultivation as a second crop. Address: 1. Agricultural faculty, Ege Univ., Izmir, Turkey; 2. Justus Liebig Univ., Giessen, West Germany.

1131. Agriculture Canada Research Station. 1977. Summary–Soybean work Nova Scotia 1954-1977. Kentville, Nova Scotia, Canada: ACRS. 62 p. 28 cm.
• ***Summary:*** The field work described in this report was conducted under the direction of G.G. Smeltzer [who began working with soybeans in 1954]. The data was compiled by F.G. Sawler. In the introductory comments, Smeltzer notes: "During the past 24 years some very factual data was obtained on soybean production in Nova Scotia. The information reported in this summary covers data collected at 50 farms and also at the Research Station, Kentville, N.S...

"A definite indication of soybeans economic potential for Nova Scotia was obtained by early test results from 1954-1973. With this information Dr. J.R. Wright and the writer planned a very extensive soybean evaluation program in 1974... For the most economic yield soybeans should be seeded by the middle of May."

The book consists mostly of tables showing variety trials, fertility trials, and production studies at specific locations in particular years. The tables contain information on yields, protein yields, protein and oil content, spacing between rows, spacing between seeds in each row, etc.

Pages 47-51 contain tables which also include summary results of soybean trials conducted in 1976 at Charlottetown (Price Edward Island), Fredericton (New Brunswick), and Lyndhurst (Nova Scotia). For each variety, the yield (in kg/ha), protein yield (in kg/ha), percentage of protein in the seeds, and percentage of oil in the seeds is given for each of the 3 locations. The best varieties (Maple Arrow, Altona, Portage) gave yields in the range of 2,400 to 3,300 kg/ha.

At Charlottetown (PEI), the highest yielding soybean varieties were Maple Arrow (2,600 kg/ha), M65-217 (2,447), and Altona (2,258).

Note: This is the earliest document seen (Jan. 2010) that mentions the soybean variety Maple Arrow. Address: Kentville, Nova Scotia, B0P 1X0, Canada.

1132. Carroll, K.K.; Huff, M.W.; Roberts, D.C.K. 1977. Dietary protein, hypocholesterolemia, and atherosclerosis. In: G. Schettler et al. Atherosclerosis IV. New York: Springer-Verlag. See p. 445-48. [29 ref]

• ***Summary:*** Feeding casein to rabbits produced hypercholesterolemia which in turn led to atherosclerosis. Address: 1. Univ. of Western Ontario.

1133. Johns, Warren L.; Utt, R.H. 1977. Chronology of the early history of Loma Linda Sanitarium and the College of Medical Evangelists [later Loma Linda University] (Document part). In: W.L. Johns and R.H. Utt, eds. 1977. The Vision Bold: An Illustrated History of the Seventh-day Adventist Philosophy on Health. Washington, DC: Review and Herald Publishing Assoc. 208 p. See p. 174-201.
• ***Summary:*** Loma Linda: The resurrection of Lonesome Linda: New medical center gets off to a very shaky start (Loma Linda Hotel, Loma Linda Sanitarium and College of Medical Evangelists). "They have gone and done what I told them not to" (American Medical Assoc., Percy Magan and Sutherland).

1906 April 15–Dedication of Loma Linda Sanitarium; Ellen White spoke to an audience of about 500. "Loma Linda is to be not only a sanitarium but an educational center... A school is to be established here for the training of gospel medical missionary evangelists" (TVN, p. 186). In 1908-09 120 students were enrolled, incl. eight in the first year of the medical-evangelistic course and seven in the second year–all no doubt medical students hoping to become licensed to practice medicine.

1909 Dec. 9–The college secured a charter from the State of California in the name of the College of Medical Evangelists; it was authorized to grant degrees in the liberal arts and sciences, dentistry, and medicine. But how would SDAs finance and staff a genuine, fully equipped school of medicine, whose students could pass state board examinations. Ellen White said to go ahead.

1910 June 15–The transfer of Loma Linda Sanitarium assets to the College of Medical Evangelists made the sanitarium legally an integral part of the college. The 1910 council also defined the constituency, named a board of trustees, outlined a curriculum, and elected a faculty. The goal was to develop a fully accredited school of medicine.

1910–Abraham Flexner published *Medical Education in the United States and Canada*, a report that exposed the deplorable state of medical education in the majority of medical schools, many of them little more than diploma mills. Flexner visited 155 medical schools, only 38 of which had budgets. "Some had started without approval or permission. Many students entered them without a high school diploma. Only the best schools had a four-year curriculum of six months each year.

In 1962 College of Medical Evangelists still existed. Address: 2. Freelance writer and editor, Wrightwood, California.

1134. University Microfilms International. 1977—. Dissertation Abstracts (Computerized bibliographic database). 300 N. Zeeb Road, Ann Arbor, MI 48106. [1043613 ref]
• ***Summary:*** This database contains virtually every American PhD dissertation accepted at an accredited institution since 1861, when academic doctoral degrees were first granted in the United States. Masters theses have been selectively indexed since 1962, and abstracts are included from spring 1988 to the present. Abstracts are included for a large majority of PhD dissertations after Jan. 1980. It also contains many Canadian dissertations and a small but increasing number from institutions abroad. British and European dissertations are included in the database from Jan. 1988 forward. First available for use in computerized form: 1977. Earliest records: 1861. Total records (9/90): 1,100,000. Address: Ann Arbor, Michigan. Phone: 800-521-3042.

1135. Carroll, K.K. 1978. Dietary protein in relation to plasma cholesterol levels and atherosclerosis. *Nutrition Reviews* 36(1):1-5. Jan. [50 ref]
Address: Prof. of Biochemistry, Univ. of Ontario, London, ONT, Canada N6A 5C1.

1136. Learning Tree (The). 1978. Make your own tofu at home–quicker and easier than baking bread! (Ad). *East West Journal*. Jan. p. 3.
• ***Summary:*** "The Learning Tree Tofu Kit contains: a 16-page booklet with recipes & instructions, a Philippine mahogany settling box, a pressing sack, cheesecloth, & enough natural Nigari solidifier for 10 batches of this practical gourmet food. An ideal gift for all your Natural Food friends. If you've never tasted homemade tofu, you've never tasted tofu! Available at your local natural food store, bookstore, or cookware shop, or send check or money order for $12.95 ($13.95 in Canada) to: The Learning Tree. The words "Tofu Kit" and those in the title of the ad are written in Cooper Black typeface, the same used for title of *The Book of Tofu*, by Shurtleff and Aoyagi. A photo shows three views of the kit (which was developed by Larry Needleman).

The ad also appeared in the following issues of this magazine: For 1978–Feb. (p. 21), April (p. 11), May (p. 41), June (p. 57), July (p. 76), Aug. (p. 14). Starting in Sept. 1978 (p. 18) the title was shortened to "Make your own tofu at home!!," with the word "HOME" written in large, bold caps. The prices were unchanged. This new ad also appeared in Oct. (p. 62), Nov. (p. 10), and Dec. (p. 69). For 1979–Feb. (p. 75), June (p. 14), Aug. (p. 66), Nov. (p. 68), Dec. (p. 4). For 1980: Jan. (p. 19) of this magazine. The kit now sold for $14.95.

Note: This is the earliest ad seen with the word "tofu" in the title. Address: Box 76, Bodega, California 94922.

1137. Maurice, T.J.; Stanley, D.W. 1978. Texture-structure relationships in texturized soy protein. IV. Influence of process variables on extrusion texturization. *Canadian Institute of Food Science and Technology Journal* 11(1):1-6. Jan. [10 ref. Eng; fre]
Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT, Canada.

1138. Villa-Abrille, Carlos. 1978. Marketing of extended meat products in Third World countries. In: American Soybean Assoc., ed. 1978. International Soya Protein Food Conference, Proceedings. Hudson, Iowa: ASA. 136 p. See p. 110-15. [1 ref]
• ***Summary:*** Contents: Statement of the problem. Applications. Case studies: Ralston Purina (reasons for developing the product, quantification and qualification of demand, determination of product type and form, communicating the value, conclusion), Pure Foods Corporation (reasons for developing the product, quantification and qualification of demand, conclusion). Summary.

Per capita consumption (kg/person) of total red meat in specified countries in 1975, in descending order of amount is: Uruguay 104, Australia 101, Argentina 98, New Zealand 95, United States 83, Canada 73, Belgium-Luxembourg 73, West Germany 68, France 67, United Kingdom 57, USSR 45, Taiwan 20, Japan 16. Address: Pure Foods Corp., Manila, Philippines.

1139. Barbeau, A. 1978. Emerging treatments: Replacement therapy with choline or lecithin in neurological diseases. Quebec cooperative study of Friedreich's ataxia. *Canadian J. of Neurological Sciences* 5(1):157-60. Feb. [76 ref. Eng; fre]
• ***Summary:*** A deficiency may be the cause of five neurological disorders: Huntington's chorea, Tardive dyskinesia, Gilles de la Tourette's disease, Friedreich's ataxia, and pre-senile dementia. Preliminary data from various laboratories indicates that some clinical improvement can occasionally be seen by taking supplements of choline or lecithin. Address: Clinical Research Inst. of Montreal, 110 Pine Ave. West, Montreal, QUE, Canada.

1140. Sanderson, J.B. 1978. Soybean testing. *Research Station Charlottetown, P.E.I., Research Summary* For the year 1977. See p. 90. (Agriculture Canada Research Branch).
• ***Summary:*** Soybeans are discussed in the section titled "Protein and New Crops." Seven soybean varieties were tested. "Two experimental lines, BD21117 and BD21115, are promising soybeans for short season areas." BD21117, the earliest variety, gave a yield of 1,648 kg/ha and took 118 days to mature. Address: Prince Edward Island, Canada.

1141. *Sankei Shinbun (Japan).*1978. Kanada de miso o tsukuritai ["I want to make miso in Canada"]. Feb.
• ***Summary:*** About Lulu Yoshihara, who is learning to make miso in Japan. Two photos show her working in a miso shop.

1142. **Product Name:** [To Fu: Fresh Soya Bean Curd].
**Foreign Name:** To Fu: Caillé Frais aux Fèves de Soya.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1978. February.
**Ingredients:** Soya bean, water, calcium sulphate: Feves de soya, eau, sulfate de calcium.
**Wt/Vol., Packaging, Price:** 500 gm packed in water in molded plastic tray with heat-sealed, peel-off plastic film lid.
**How Stored:** Refrigerated.
**New Product–Documentation:** Richard Leviton. 1980. Soyfoods. Summer. p. 17-18. "Soyfoods in Toronto." Stephen Yu "opened his factory in 1978, with an initial daily production of 900 pounds of tofu."

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owner: Stephen Yu.

Leviton. 1981. Soyfoods. Winter. p. 55. A black-and-white photo shows "VFP Tofu" on sale in Canada.

Joanne Kates. 1985. Globe & Mail (Toronto, ONT, Canada). 1985. Oct. 4. "Tofu for a Small Planet."

Label. 1983-84. 5 by 4.25 inches. Green and orange. Printed on clear plastic film. Written in both English and French The product name is spelled "To Fu." "Keep refrigerated."

New label. undated. 5 by 4.25 inches. Green, orange, yellow, and white. Printed on clear plastic film. Written in both English and French. The product name is now written "VFP Tofu." With the product comes a recipe sheet (5.5 by 8.5 inches; date coded 81-1), folded into eighths, and packed inside a sealed plastic envelope. It contains recipes for Tofu Eggless Salad, Tofu Mayo, and Cauliflower with Tofu Lemon Cream. Kathleen O'Bannon is listed as the company's nutrition consultant. The company also has a sheet of tear-off recipes. On one side are serving suggestions for tofu and recipes for Tofu meat loaf, scrambled tofu & eggs, and Sweet tofu topping. The other offers a 30% discount on Christina Clarke's book "Cook with Tofu."

Talk with Stephen Yu. 1990. March 5. He started making soyfoods in Feb. 1978. His first three products were tofu, tofu pudding (daufu-fa), and soymilk.

Note: This is the earliest record seen (Feb. 2010) concerning Victor Food Products Ltd. (Scarborough, Ontario, Canada).

1143. **Product Name:** Tofu Pudding (daufu-fa), and Soymilk.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1978. February.
**New Product–Documentation:** Talk with Stephen Yu. 1990. March 5. He started making soyfoods in Feb. 1978. His first three products were tofu, tofu pudding (daufu-fa), and soymilk.

1144. Bal, Arya K.; Shantharam, S.; Ratnam, S. 1978. Ultrastructure of *Rhizobium japonicum* in relation to its attachment to root hairs. *J. of Bacteriology* 133(3):1393-1400. March. [37 ref]
Address: Dep. of Biology, Memorial Univ. of Newfoundland, St. John's, Newfoundland, Canada A1B 3X9.

1145. Walker, Robert. 1978. How to make tempeh–the nutritious meat substitute. *Alive (Canada)* No. 18. p. 13.
• ***Summary:*** The author started producing Canada's first commercial tempeh in June 1978. Here he describes what tempeh is, how to make it at home, and how to cook it. Photos show: (1) Robert Walker with the container he invented for making doughnut-shaped tempeh. The inside core and the holes on the outside tube allow the air to circulate evenly throughout the fermenting soybeans. (2) A close-up of two shapes of tempeh. A note at the bottom of the page states: "Robert Walker who lives in Port Perry, Ontario, is starting a tempeh making business." Address: Ontario, Canada.

1146. Carroll, K.K. 1978. The role of dietary protein in hypercholesterolemia and atherosclerosis. *Lipids* 13(5):360-65. May. [50 ref]
Address: Dep. of Biochemistry, Univ. of Western Ontario, London, ONT Canada N6A 5C1.

1147. Shurtleff, Bill. 1978. News from New-Age Foods Study Center. *Soycraft (Lawrence, Kansas)* 1(3):3-5. June.
• ***Summary:*** This open letter begins: "Dear Soycrafters of North America: There has recently been growing interest in North America in starting a Soycrafters Union or Cooperative, perhaps along the lines of Japanese National Tofu, Miso, Shoyu, Natto, etc. Unions [Associations]. Such a development would seem to represent a great leap forward, of benefit to many in the expansion of consciousness and production of quality soyfoods in the Western world."

The author then summarizes five major functions of Japanese national trade associations related to soy products, and suggests how each of these be adapted to present American conditions and consciousness which are very different from those in Japan: Purchasing soybeans, maintaining a list of member shops, doing "soyfood publicity," publishing a newsletter, and establishing and running a nationwide center, information clearing house, and school for teaching production of low-technology "soyfoods" to people from both developed and developing countries.

"How might this basic model be adapted to the United States? First, since soyfoods are still quite new in the USA, we might want to form one united front cooperative or union for all soycrafters or producers of soyfoods, rather than trying to form individual unions for tofu & soymilk, miso, tempeh, shoyu, etc. Given such a joint union, it would seem that all of the functions performed by the Japanese unions would be of great potential value to producers in North America. The key point, however, is that for the Union to work it must be financially viable and sound. Thus it must be created and supported by individual members who understand clearly that its functions are in their best interest, both in the short and long run."

"Second, we must remember that the number of shops presently producing soyfoods here is still very small. We have the names of 95 tofu shops and/or soy dairies in the United States plus 6 more in Canada, 9 tempeh shops, 8 miso shops, and one shoyu factory (Kikkoman). Of these, about 41 of the tofu shops and soy dairies, 5 of the tempeh shops, and 2 of the miso shops are 'new-age' types, newly started by Caucasian Americans. This latter group would probably form the initial nucleus of the Soycrafters Union, however after the benefits of membership could be clearly demonstrated, the more conservative Japanese producers might be eventually interested in joining."

"At the proposed First North American Soycrafters Convention to be held in Ann Arbor [Michigan] July 28-30 the above suggestions might be discussed one by one..."

At the end of the article is a form which new or existing tofu or soymilk manufacturers in the U.S. are invited to fill out and return to Shurtleff so that he can list them in the next edition of *The Book of Tofu.* Its asks for the name, address, and phone number of the company, the person(s) in charge, the date tofu or soymilk production started, the approximate cost of getting started, the average quantity of soybeans used per week, the soyfoods produced (in order of importance), the main pieces of equipment purchased, and equipment the company plans to purchase in the near future.

Note the early use of the terms "soyfoods" and "soyfood" in this article. The term "soyfoods" was coined by Surata Soyfoods of Eugene, Oregon, in Dec. 1976.

Note 2. This is the earliest document seen (Oct. 2008) that contains the term "low technology" (or "low tech"). Shurtleff coined this term to refer to soyfoods that could be made, and had long been made, using simple, traditional technologies, appropriate to Third World countries or

relatively poor areas. Address: Director, New-Age Foods Study Center, 278-28 Higashi Oizumi, Nerima-ku, Tokyo 177, Japan. Phone: (03) 925-4974.

1148. Shurtleff, William. comp. 1978. Mailing labels of companies buying large quantities of *The Book of Tofu,* and *The Book of Miso* from Autumn Press. Lafayette, California. 1 p. Undated. Unpublished typescript.
• ***Summary:*** Mailing labels (including the company name, purchaser or key contact person, and address) are given for the following companies: Erewhon, Inc. (Cambridge, Massachusetts), Nutri-Books Corp. (Denver, Colorado), Lifestream Natural Foods (Richmond, BC, Canada), Manna Foods (Scarborough, Ontario, Canada), Midwest Natural Foods (Ann Arbor, Michigan), Nature's Best (Torrance, California), Laurelbrook Foods (Bel Air, Maryland), Feather River (Bellevue, Washington), Arrowhead Mills (Denver, Colorado), Llama Trading Co. (Greenfield, Massachusetts), Reality Natural Foods (Honolulu, Hawaii), Tree of Life (St. Augustine, Florida), Eden Foods (Ann Arbor, Michigan), New Leaf Distributing Co. (Atlanta, Georgia), East West Journal (Brookline, Massachusetts), Mother Earth News (Hendersonville, North Carolina), Bookpeople (Berkeley, California), Landstrom (South San Francisco, California), Health Foods Inc. (Des Plaines, Illinois).

A single-letter code, A through D, appears in the upper right corner of each label. A = Biggest buyer. B = Second biggest buyer, etc. Erewhon and Nutri-Books are the two biggest buyers. Address: Lafayette, California.

1149. **Product Name:** Tempeh.
**Manufacturer's Name:** Tempeh Enterprises, Ltd.
**Manufacturer's Address:** R.R. 3, Group 3, Box 7, Port Perry, ONT, L0B 1N0 Canada. Phone: 416-985-3158.
**Date of Introduction:** 1978. June.
**New Product–Documentation:** Soya Bean Tempeh. This 1-page leaflet (undated, but probably printed in 1978-79) contains 10 tempeh recipes developed by Tempeh Enterprise Ltd.: Tempeh rarebit. Fried tempeh cakes. Tempeh-rice casserole. Tempeh soup. Tempeh casserole. Broiled tempeh cakes. Tempeh steamed delight. Tempeh carob (or chocolate) cookies. Tempeh candy bars. Tempeh and wheat-germ brownies.

Letter (5 pages) from Robert Walker, founder and owner. 1979. March 9. He presently makes 1 batch of tempeh a week; 28 lb of soybeans yield about 50 lb of tempeh. "I am 59 years old, have a full-time job, and started Tempeh Enterprises Limited about 1 year ago with thoughts of devoting all my time in the future, if I retire at an early age, to making and marketing tempeh... I made a large poster for each store ('Tempeh Available Here'). I am enclosing a recipe flyer, that is on the counter in each store..." Describes his process and equipment.

Letter from Robert Walker. 1979. Undated, but about April. Gives a detailed handwritten 9-page description, with illustrations, of how his company makes tempeh. Letter from Robert Walker. 1979. May 9. Includes photos of his process for making tempeh. Shurtleff & Aoyagi. The Book of Tempeh. 1979 (July). p. 149. Owner: Robert Walker.

Soyfoods Center Computerized Mailing List. 1981. Jan. 22. Owner: Robert Walker.

Letter from Robert Walker. 1984. May 3. "I started to sell tempeh in June 1978. I have enclosed a letter and some bills of sale as proof of the date. I do not know of any other tempeh production before mine. Robert Rodale wrote an article in *Prevention* magazine about tempeh in July 1977. After reading and studying that article I decided to start a tempeh shop. The maximum amount of tempeh I made and sold was 50 lb/week. I will be 65 years old in September and I am planning on retiring for my job at Port Perry High School at the end of that month. As to why I stopped making tempeh, I guess I was trying to burn the candle from both ends, working 8 hours a day, 5 days a week at the high school, making 50 pounds of tempeh and the starter and driving about 60 miles (one way) through heavy traffic to Toronto each Saturday to deliver the tempeh to 5 or 6 health food stores, as well as doing household duties, community work, gardening, snow shovelling (we live in the country), etc." On 29 Oct. 1979 Robert was taken to the hospital and diagnosed as suffering from anxiety syndrome. He was not able to return to work at school for one year. Now he is back to normal, but he had to discontinue making tempeh commercially.

Shurtleff & Aoyagi. 1985. History of Tempeh. p. 60. This was the earliest known commercial tempeh produced in Canada.

1150. Thompson, Lilian U. 1978. Coprecipitation of cheese whey with soybean and cottonseed proteins using acid and heat treatment. *J. of Food Science* 43(3):790-92. May/June. [11 ref]
• ***Summary:*** Compared with a commercial soy protein isolate, all coprecipitates had a lower solubility, emulsifying and whipping capacities, but equivalent water and fat absorption capacities. The whipping properties decreased in the coprecipitate isolate but increased in the coprecipitate soybean and cottonseed concentrate. Address: Dep. of Nutrition & Food Science, Univ. of Toronto, Toronto, Ontario, Canada.

1151. Sosulski, F.W.; Chakraborty, P.; Humbert, E.S. 1978. Legume-based imitation and blended milk products. *Canadian Institute of Food Science and Technology Journal* 11(3):117-23. July. [15 ref. Eng; fre]
• ***Summary:*** Protein isolates from ten legume species were evaluated as the protein component in imitation milks. While similar in protein content, the isolates exhibited a

wide range in solubility, fat homogenization, viscosity, and conductivity. The legumes were ranked in the following descending order of preference for imitation milk production: lima bean *(Phaseolus lunatus,* 5.9), mung bean *(Vigna radiata,* 5.9), pea bean *(Phaseolus vulgaris,* 5.7), Great Northern bean *(Phaseolus vulgaris,* 5.6), lupine *(Lupinus angustifolius,* 5.4), field pea *(Pisum sativum arvense,* 5.2), lentil *(Lens culinaris,* 5.1), chickpea *(Cicer arietinum,* 5.1), soybean *(Glycine max,* 4.8), faba bean *(Vicia faba minor,* 4.1). Note the low ranking of soybeans. The lima bean had the best color ranking. Mung bean (4.1) had the best taste, followed by chickpea (4.0), lupine (3.6) and northern bean (3.6), all far ahead of soybean (2.8). Lupine (5.3) had the best odor, followed by mung bean (5.0), lentil (4.7), and lima bean (4.5), with soybean quite low at 3.3.

Note 1. It is not clear whether or not the soybeans used in this study were grown in Saskatchewan.

Note 2. This is the earliest English-language document seen (Jan. 2005) that uses the term "faba bean" (or "faba beans") to refer to *Vicia faba.* Address: Depts. of Crop Science and Dairy and Food Science, Univ. of Saskatchewan, Saskatoon, Sask, S7N 0W0, Canada.

1152. Carroll, K.K.; Giovannetti, P.M.; Huff, M.W.; Moase, O.; Roberts, D.C.K.; Wolfe, B.M. 1978. Hypocholesterolemic effect of substituting soybean protein for animal protein in the diet of healthy young women. *American J. of Clinical Nutrition* 31(8):1312-21. Aug. [29 ref]

• ***Summary:*** Type II hyperlipidemic patients appear to be significantly more sensitive to the cholesterol lowering effects of soy proteins than normolipidemics. Thus, plasma cholesterol levels were found to be significantly lower on the plant protein diet as compared to the animal protein diet. Address: 1. Univ. of Western Ontario.

1153. Tamarkin, Bob. 1978. What–and who–makes Cargill so powerful? *Forbes.* Sept. 18. p. 150-51, 154, 156.

• ***Summary:*** "With a net worth of over $1 billion, grain trader Cargill, Inc. is the U.S.'s largest privately held corporation. Here's a rare peek behind the scenes... This $11-billion-a year 114-year-old dowager of the grain industry handles more than 25% of U.S. grain exports, making it the single largest contributor to the U.S. balance of payments. What makes Cargill unusual is the fact that 85% of the stock is owned by some 33 members of the Cargill and MacMillan families and the tax-exempt Cargill Foundation, a charitable trust."

Contains graphs of earnings and sales from 1968 to 1978. Earnings rose from 15 million in 1968 to $40 million in 1972 to $220 million in 1974 and $230 million in 1975; by 1977 they had fallen back to $110 million, but rose to an estimated $120 million in fiscal 1978.

Sales rose from $2,000 million in 1968 to $4,000 million in 1972, to 10,800 million in 1975. Thereafter they stabilized, reaching an estimated $11,300 million for the fiscal year ended 31 May 1978.

"Basically, Cargill makes a profit in two ways: (1) by buying grain at a point of surplus and carrying it to a point of deficit, and (2) by buying it at a time of surplus and carrying it over to a time of deficit. The profit comes from its ability to do both of these things at a lower cost than its competitors–and its willingness from which Cargill never strays. 'During the soybean boom [in 1973] Cargill could have made $200 million had we gone long our inventories,' recalled a Cargill trader. 'But we stayed hedged. That was the test. There was a minirevolt among traders who wanted to go long, but [President] McVay said No'...

"Up until 1950, Cargill's only business was grain. Today grain accounts for only about one-third of the volume. Cargill is currently one of the top soybean processors in the world as well as feed producer for the livestock and poultry industries in the U.S., Europe, Canada, Latin America and Asia. It grows and markets hybrid corn, sells products made from soybeans, flour, wheat, tapioca, sunflowers and other oilseeds, poultry, eggs and scrap iron. Recent ventures include cattle feeding, poultry processing, salt mining, steel production, barge construction, chemical processing, sugar, molasses, cotton and coal merchandising, commodity futures trading, equipment leasing and life insurance."

Photos show Chairman Whitney MacMillan, Cargill's chateau-like headquarters near Minneapolis, Minnesota, and President McVay and Vice Chairman Diercks.

1154. *Soyanews (Sri Lanka).*1978—. Serial/periodical. c/o CARE, P.O. Box 1024, Colombo, Sri Lanka. Vol. 1 Sept. 1978.

• ***Summary:*** During its early years, this publication, edited by Mr. Pathiravitana in Colombo, was extremely well done, a pioneering effort in assisting the introduction of soya to a Third World country. The Jan/June 1987 issue announced that Soyanews, presently a quarterly, would henceforth be published only twice a year. But that was soon changed back to a quarterly due to help from Plenty Canada.

1155. National Soybean Processors Association. 1978. Year book and trading rules 1978-1979. Washington, DC. ii + 106 p.

• ***Summary:*** On the cover (but not the title page) is written: Effective October 1, 1978. This is the 50th anniversary issue. Contents: The National Soybean Processors Association [Introduction and overview]. Constitution and by-laws. Officers and directors. Executive office. Members. Standing committees. Food Protein Council. Trading rules on soybean meal. Sales contract. Appendix to trading rules on soybean meal: Official methods of analysis (moisture,

protein, crude fiber, oil {only method numbers listed}), sampling of soybean meal (automatic sampler, probe sampler), official weighmaster application, semi-annual scale report, official referee chemists (meal). Trading rules on soybean oil. Sales contract. Definitions of grade and quality of export oils. Soybean lecithin specifications. Appendix to trading rules on soybean oil: Inspection, grading soybean oil for color (N.S.P.A. tentative method), methods of analysis (A.O.C.S. official methods): Soybean oil, crude; soybean oil, refined; soybean oil, refined and bleached; soybean oil for technical uses; soap stock, acidulated soap stock and tank bottoms (only method numbers listed), official weighmaster application, semi-annual scale report, official referee chemists (oil). Soybean oil export trading rules. Foreign trade definitions (for information purposes only).

The page titled National Soybean Processors Association (p. ii) states: "During the past crop year about 900,000,000 bushels of soybeans moved through processing plants of NSPA's 29 member firms. Approximately 55 percent of America's 1.7 billion-bushel soybean crop is bought and processed by NSPA members. Exporters account for another 41 percent of the crop, and the remainder [4%] is returned to farms for seed, feed, and residuals." Also discusses industry programs, soybean research, and international market development."

The section on officers, executive committee, and board of directors (p. 7-8) gives the name, company affiliation, and phone number of each person. Officers–Chairman: John G. Reed, Jr., Continental Grain Co. Vice Chairman: C. Lockwood Marine, Central Soya Co., Inc. President: Sheldon J. Hauck. Secretary: A.E. Idleman, A.E. Staley Manufacturing Co., Inc. Treasurer: Edward J. Cordes, Ralston Purina Co. Immediate past chairman: Lowell K. Rasmussen, Honeymead Products Co.

Executive Committee: Gorge A. Heinz ('79), Buckeye Cellulose Corp. Donald H. Leavenworth ('79), Spicola, Cargill, Inc. C. Lockwood Marine, Central Soya Co. Inc. John G. Reed, Jr., Continental Grain Co. Gaylord O. Coan ('80), Gold Kist, Inc. Lowell K. Rasmussen, Honeymead Products Co. William T. Melvin ('80). Planters Oil Mill, Inc. Theodore W. Bean ('79), Quincy Soybean Co. Edward J. Cordes, Ralston Purina Co. Richard E. Bell ('80), Riceland Foods, Inc. Austin E. Idleman, A.E. Staley Mfg. Co.

Board of Directors (alphabetically by company; each member company has one representative on the board): Thomas H. Wolfe, Anderson, Clayton & Co. Charles Bayless, Archer Daniels Midland Co. Keith Voight, Boone Valley Coop. Processing Assn. George H. Heinz, Buckeye Cellulose Corp. David C. Thompson, Bunge Corporation. Donald H. Leavenworth, Cargill, Inc. C. Lockwood Marine, Central Soya Co., Inc. John G. Reed, Jr., Continental Grain Co. Joe C. Givens, Dawson Mills. Alfred Jenkins, Delta Cotton Oil & Fertilizer Co. Kenneth E. Sullivan, Farmers Grain Dealers Assn. of Iowa. Donald M. Chartier, Farmland Industries, Inc. Gaylord O. Coan, Gold Kist Inc. Lowell K. Rasmussen, Honeymead Products Co. Kenneth J. McQueen, Land O'Lakes, Inc. Floyd W. Brown, Lauhoff Grain Co. Kermit F. Head, Missouri Farmers Assn.–Grain Div. Robert E. Hicks, Owensboro Grain Co., Inc. Sewell L. Spedden, Perdue Incorporated. John H. Payne, Planters Manufacturing Co. William T. Melvin, Planters Oil Mill, Inc. Theodore W. Bean, Quincy Soybean Co. Edward J. Cordes, Ralston Purina Co. Richard E. Bell, Riceland Foods, Inc. J.D. Morton, Sherman Oil Mill. Stiles M. Harper, Southern Soya Corp. Austin E. Idleman, A.E. Staley Mfg. Co. Preston C. Townsend, Townsend's Inc. Tyler Terrett, West Tennessee Soya Mill, Inc.

Executive office, Washington, DC: Executive Director, Sheldon J. Hauck. Director, Public Affairs: Jack DuVall. Director, Regulatory Affairs: William F. Sullivan. Administrative Asst.: Helen Miller. National Soybean Crop Improvement Council: Robert W. Judd, Managing Director.

Members (listed alphabetically by company; within each company, first the name of the official Association representative {who is on the Board}, followed by the other personal members listed alphabetically by surname. For example, Archer Daniels Midland Co., the company with the most personal members, has 26. After the name of each personal member is given with his address and phone number. In the listing below, the number of personal members is shown in parentheses after the name of each company, followed by city and state of the various locations): Anderson, Clayton & Co. (6); Phoenix, Arizona; Jackson, Mississippi; Houston, Texas. Archer Daniels Midland Co. (26); Decatur, Illinois; Galesburg, Illinois; Granite City, Illinois; Fredonia, Kansas; Mankato, Minnesota; Red Wing, Minnesota; Fremont, Nebraska; Lincoln, Nebraska; Kershaw, South Carolina. Boone Valley Coop. Processing Assn., Eagle Grove, Iowa. Buckeye Cellulose Corp. (8); North Little Rock, Arkansas; Augusta, Georgia; Cincinnati, Ohio; Memphis, Tennessee. Bunge Corporation (6); Cairo, Illinois; Logansport, Indiana; Emporia, Kansas; New York City, New York; Cargill, Inc. (18); Osceola, Arkansas; Gainesville, Georgia; Cedar Rapids, Iowa; Des Moines, Iowa; Sioux City, Iowa; Washington, Iowa; Chicago, Illinois; Wichita, Kansas; Minneapolis, Minnesota; Fayetteville, North Carolina; Sidney, Ohio; Memphis, Tennessee; Chesapeake, Virginia. Central Soya Co., Inc. (11); Gibson City, Illinois; Decatur, Indiana; Fort Wayne, Indiana; Indianapolis, Indiana; Belmond, Iowa; Marion, Ohio; Bellevue, Ohio; Delphos, Ohio; Chattanooga, Tennessee. Continental Grain Co. (6); Guntersville, Alabama; Chicago, Illinois; Taylorville, Illinois; New York City, New York; Cameron, South Carolina. Dawson Mills (3); Dawson, Minnesota. Delta Cotton Oil & Fertilizer Co. (1); Jackson, Mississippi.

Farmers Grain Dealers Assn. of Iowa (Cooperative), Soybean Processing Div. (1); Mason City, Iowa. Farmland Industries, Inc. (5); Van Buren, Arkansas; Sergeant Bluff, Iowa; Hutchinson, Kansas; St. Joseph, Missouri. Gold Kist Inc. (3); Atlanta, Georgia. Honeymead Products Co. (3); Mankato, Minnesota. Land O'Lakes, Inc. (2); Fort Dodge, Iowa; Sheldon, Iowa. Lauhoff Grain Co. (1); Danville, Illinois. Missouri Farmers Assn.–Grain Div. (5); Mexico, Missouri. Owensboro Grain Co., Inc. (2); Owensboro, Kentucky. Perdue Incorporated (2); Salisbury, Maryland. Planters Manufacturing Co. (2); Clarksdale, Mississippi. Planters Oil Mill, Inc. (2); Rocky Mount, North Carolina. Quincy Soybean Co. (4); Quincy, Illinois. Ralston Purina Co. (8); Bloomington, Illinois; Lafayette, Indiana; Iowa Falls, Iowa; Louisville, Kentucky; Kansas City, Missouri; St. Louis, Missouri; Raleigh, North Carolina; Memphis, Tennessee. Riceland Foods, Inc. (8); Helena, Arkansas; Stuttgart, Arkansas. Sherman Oil Mill (1); Fort Worth, Texas. Southern Soya Corp. (1); Estill, South Carolina. A.E. Staley Manufacturing Co. (7); Decatur, Illinois. Townsend's Inc. (2); Millsboro, Delaware. West Tennessee Soya Mill, Inc. (1); Tiptonville, Tennessee.

Associate Members: ACLI Soya Co, White Plains, New York. Anderson Clayton Foods, Dallas, Texas. Balfour MacClaine International, Ltd., New York City, New York. Best Foods, a Unit of CPC International Inc., Englewood Cliffs, New Jersey. California Vegetable Oils, Inc., San Francisco. Canadian Vegetable Oil Processing Co., Hamilton, Ontario, Canada. Cobec Brazilian Trading and Warehousing Corp. of the U.S., New York City. Louis Dreyfus, Stamford, Connecticut. Durkee Foods, Div. of SCM Corporation, Chicago, Illinois (Gerald J. Daleiden). Gordon-Kutner Co., Dallas, Texas. Grain Processing Corp., Muscatine, Iowa (H.P. Woodstra). Hartsville Oil Mill, Hartsville, South Carolina (Richard A. Koppein). Humko Products, Memphis, Tennessee. Hunt-Wesson Foods, Inc., Fullerton, California. Lever Bros Co., New York City, New York. Maple Leaf Mills Ltd., Toronto, Ontario, Canada (W.G. Milliken). Marwood Company, San Francisco, California. Overseas Commodities Corp., Minneapolis, Minnesota. Pillsbury Co., Bloomington, Minnesota. Procter & Gamble Co., Cincinnati, Ohio. PVO International Inc., San Francisco, California. Quaker Oats Co. (The), Chicago, Illinois. Schouten International, Inc., Minneapolis, Minnesota. Sofico, Memphis, Tennessee. Spencer Kellogg, Div. of Textron, Inc., Buffalo, New York. Alfred C. Toepfer, Inc., New York City, New York (Dieter Rahlmann).

Standing committees: For each committee, the function of the committee, the names of all members (with the chairman designated), with the company and company address of each are given–Crop Improvement Council. Meal trading rules. Oil trading rules. Safety and insurance. Soybean Research Council. Technical. Address: 1800 M St., N.W., Washington, DC 20036. Phone: (202) 452-8040. Telex 89-7452.

1156. Shurtleff, William. 1978. Tofu shops and soy dairies in the West. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 2 p. Undated. Unpublished typescript.
• ***Summary:*** Lists the name, address, phone number and owner of all known tofu shops and soy dairies in the USA (alphabetically by state, and within each state alphabetically by city), Canada, Latin America, Europe, and Australia. There are 122 tofu shops and soy dairies in the USA and Canada, and 138 on the entire list.

This list appeared in the first Ballantine Books edition of *The Book of Tofu*, which was available on 22 Dec. 1978, although the date on the copyright page is Jan. 1979. We checked the last dummies on 23 Oct. 1978–which is the latest date we could have submitted this list. Address: Lafayette, California. Phone: 415-283-2991.

1157. Starenkyj, Danièle. 1978. Le bonheur du végétarisme: Principes de vie & recettes. 2ième éd. [The happiness of vegetarianism: Principles of life and recipes. 2nd. ed.]. Armagh, Quebec, Canada: Orion. 351 p. Oct. Illust. by Stefan Starenkyj. Index. 23 cm. First ed. 1977. [26 ref. Fre]
• ***Summary:*** Soy-related recipes include: Soy coffee (p. 101). Soya souffle (with whole soybeans, p. 204). Chapter 14, titled "A cow in your kitchen" (p. 207-27), contains extensive information on soymilk, soymilk products, and problems with cow's milk. It's contents: Introduction. What is soya? The proteins of the soybean *(la fève soja).* The carbohydrates of the soybean. The vitamins and minerals of the soybean. The oils of the soybean. Soymilk: The cow of China. Reasons for replacing animal milk in your diet with soymilk: Many people are allergic to animal milk. Animal milk is a cause of anemia. Animal milk can be a cause of infection of the urinary tract, particularly in infants. Animal milk is polluted. Comparison of the composition of soymilk and cow's milk (100 gm each). How to make soymilk at home. Soymilk whipped cream. Soy mayonnaise without eggs. Soy yogurt (fermented). Tofu: The meat without bones. Nutritive value of tofu. How to make tofu at home. Tofu filets. Tofu steaks. Breaded tofu slices. Tofu pâté à tartiner. Grilled tofu. Okara *(La pulpe de soja).* Okara pâté *(Pâté à la pulpede soja).* Soya butter *(Buerre de soja;* made from 1 cup lightly grilled soy flour, 2 cups water, a little salt, and about ½ cup oil). Address: Ottawa, Canada.

1158. Lindsay, Anne. 1978. Try Oriental options: Easy-to-prepare Japanese recipes. *Toronto Star (Ontario, Canada).* Nov. 15. p. C1-C2.
• ***Summary:*** Japanese recipes include: Gomoku gohan (Rice with vegetables; with "2 cakes aburaage {fried bean curd}, cut into matchstick size, julienne strips," and "¼ cup soy sauce"). Sukiyaki (with "2 pieces tofu {fresh bean curd} cut

into one-inch pieces"). Sukiyaki sauce (with "½ cup soy sauce").

Note: A very good description of authentic sukiyaki and how to make it.

1159. Christmas, Robin. 1978. Price of security is total submission. *Toronto Star (Ontario, Canada).* Nov. 25. p. C4.
• ***Summary:*** Robin Christmas is writing a book on manipulation of the mind "in the new religions, the so-called cults." In this article he examines The Farm, a commune of 1,100 that describes itself as a "spiritual community of longhairs." The Farm, with headquarters in rural Lewis County, Tennessee, is the center of a network of 17 sister farms spread out across the United States, with one branch in Guatemala and one in Lanark County, Ontario, Canada–a federally registered non-profit organization named Plenty Canada. The Farm' spiritual mentor is Stephen Gaskin–" drop-out from his job as an instructor of creative writing at San Francisco State College."

"The Farm views itself as a pilot program for the salvation of the human race." The members live simply and use appropriate technology requiring far fewer resources than those of a typical North American today.

In Guatemala, a team of Farm volunteers is working on earthquake reconstruction, agricultural reform and public works "with the aid of $20,000 in money and $90,000 in materials from the Canadian International Development Agency (CIDA), channeled through Plenty Canada.

"The head of Plenty Canada, Dennis Martin, said this week in an interview from Tennessee that the group has a promise of $780,000 more through CIDA for earthquake reconstruction."

"The new religions fill needs for their members: Security, boundless love, and acceptance, food, shelter, and a purpose to one's existence.

"The price? Well, it's only total submission to the ideology of the group. For many that is a fair trade."

Note 1. This is the earliest document seen (Jan. 2010) that mentions Plenty Canada.

Note 2. We (Soyinfo Center) feel this is a very unfair, unbalanced, and inaccurate description of The Farm and its "branches."

1160. Kent, Jack. 1978. Oilseed mill starts search for qualified staff: Maple Leaf Monarch plant. *Windsor Star (Essex County, Ontario, Canada).* Dec. 1.
• ***Summary:*** Canada's first multi-oilseed processing plants will require a specially trained work force. "The Maple Leaf Monarch plant will replace the present facilities of Maple Leaf Mills on the Toronto waterfront and more than triple the capacity of the plant." Address: Star business reporter.

1161. Etienne, P.; Gauthier, S.; Dastoor, D.; Collier, B.; Ratner, J. 1978. Lecithin in Alzheimer's disease. *Lancet* ii(8101):1206. Dec. 2. [9 ref]
Address: Douglas Hospital Center; Montreal Neurological Inst.; Dep. of Pharmacology, McGill Univ.; Maimonides Hospital. All: Montreal, Canada.

1162. Boulton, Marsha. 1978. The soya dog: The same old dog minus the meat. *Maclean's (Canada)* 91(31):11. Dec. 11.
• ***Summary:*** Alan Kempton, age 46 and a biologist at Ontario's University of Waterloo [Canada], is building a better hotdog with the help of soya and a $25,000 research grant from the federal ministry of agriculture. He hopes to have the product ready by July 1979. Beef prices are up 70% from last year.

1163. *East West Journal.*1978. Soy boom. Dec. p. 18.
• ***Summary:*** "Over seventy people involved in the production of soy foods met in Ann Arbor, Michigan, this summer and established the Soycrafters Association of North America (SANA). The nonprofit organization will facilitate communication among the 140 businesses producing tofu, miso, soymilk, or tempeh. SANA reports soy foods have been received enthusiastically across the United States and Canada. Seventy new tofu shops and soy dairies have been established in thirty-one states in the last two years. For further information write SANA, Box 76, Bodega, California 94922."

1164. **Product Name:** Tofu.
**Manufacturer's Name:** Oriental Trading Co.
**Manufacturer's Address:** 340 Ave. C South, Saskatoon, SASK, S7M 1N4, Canada. Phone: 306-652-3697.
**Date of Introduction:** 1978. December.
**New Product–Documentation:** Shurtleff & Aoyagi. 1978, Dec. *The Book of Tofu* (Ballantine pocketbook edition). "Appendix B: Tofu Shops and Soy Dairies in the West." p. 399. Oriental Trading Co., 19th St., Saskatoon, Saskatchewan, Canada. Owner: Mrs. Kwok.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owner: Art Mark.

1165. **Product Name:** Tofu.
**Manufacturer's Name:** Shrada Tofu.
**Manufacturer's Address:** R.R. 1, New Denver, BC, Canada.
**Date of Introduction:** 1978. December.
**New Product–Documentation:** Shurtleff & Aoyagi. 1978, Dec. *The Book of Tofu* (Ballantine pocketbook edition). "Appendix B: Tofu Shops and Soy Dairies in the West." p. 399. Owner: Derrick Marston.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name and address. No phone number. Owner: Derrick Mattston.

1166. **Product Name:** Tofu.
**Manufacturer's Name:** Hwa Chang.
**Manufacturer's Address:** Toronto, ONT, Canada.
**Date of Introduction:** 1978.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Jhasun Koo, owner and founder of Pyung Hwa Food Co. 1989. May 4. He started making tofu in 1978 on Dundas St. In 1978 the only other tofu companies in Toronto were Yet Sing (probably the first) and Hwa Chang. Both were run by Chinese-Canadians and both are still in business.

1167. **Product Name:** [Tofu: Soybean Cake].
**Foreign Name:** Tofu: Gâteau aux Feves de Soya.
**Manufacturer's Name:** Pyung Hwa Food Co. Inc.
**Manufacturer's Address:** 2139 Dundas St., Toronto, ONT, M6R 1X1, Canada. Phone: 416-534-0237.
**Date of Introduction:** 1978.
**Ingredients:** Soya beans (Feves de soya), water, magnesium chloride (chlorure de magnesium), calcium sulfate (sulfate de calcium).
**Wt/Vol., Packaging, Price:** 600 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** R. Leviton. 1980. Soyfoods magazine. Summer. p. 16-17. "Mr. Jhasun Koo's Korean tofu shop (2139 Dundas St.) is located underneath a garage and service station. The traditional-style shop, which began operation in 1976, produces about 5,000 pounds of tofu weekly, in the form of 2000, 40-ounce containers of nigari-made tofu." He has 7 workers. Two-thirds of Pyung Hwa's market is Oriental stores, the rest going to natural foods stores. With Vital Eat handling his tofu distribution now, and Mr. Koo's recent conversion to nigari and organic soybeans, he expects to increase sales to the natural foods trade.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owner: Mr. Jhasun Koo.

Label. 1983, undated. 5 by 4.25 inches. Plastic film. Blue and light blue on clear film. "Soybean cake. Gateau aux feves de soya. Keep refrigerated."

Talk with Martha Gifford Thompson of Rochester Zen Center. 1989. April 11. She once visited a small tofu shop on Dundas in Toronto. She is not sure what nationality of people ran it. Talk with Jon Cloud of Soy City Foods. 1989. May 3. Pyung Wa was an early tofu company on Dundas St.

Talk with Jhasun Koo, owner and founder. 1989. May 4. He started making tofu in 1978 (not 1976) on Dundas St. Before that he had made soy sprouts in his home basement. In 1978 the only other tofu companies in Toronto were Yet Sing (probably the first) and Hwa Chang. Both were run by Chinese-Canadians and both are still in business. In 1986 he moved from Dundas St. to his current address: 115 McCormack St., Toronto, ONT, M6N 1X8. Phone: 416-767-7604.

1168. Commission of the European Communities. Agriculture. 1978. Report of the study group on vegetable proteins in foodstuffs for human consumption, in particular in meat products. Luxembourg. v + 150 p. (EUR 6026). [20+ ref]
• ***Summary:*** Contents: Summary of conclusion and recommendations. Introduction: Origin, terms of reference and composition of the Study Group, mode of operation of the study group and the form of its report, scope of the report. Sources of vegetable protein foods: Vegetable protein foods and the farming community. Vegetable protein foods and the consumer: Nutrition, safety, acceptability. Current technology and commercial development: Legislation, type (a), (b), (c), and (d) products. Enforcement. Other foods.

Appendixes. I. Membership of the Study Group and the Commission Secretariat. II. Part 1. The nutritional situation in the EEC, by A. Ferro-Luzzi and A. Mariani. Part 2. Note on the methods for the evaluation of protein quality, by A. Ferro-Luzzi and A. Mariani. Part 3. Amino acid composition of some traditional foodstuffs and of potential sources of proteins for human consumption, by T. Staron. III. Part 1. Existing and new sources of plant proteins suitable for use in human nutrition, by T. Staron. Part 2. Toxic substances contained in potential sources of proteins for human consumption, by T. Staron. IV. Commercial development of soya bean protein products in the EEC, by A.G. Ward. V. Potential vegetable protein sources for human consumption from within the EEC, by T. Staron. VI. Summaries of existing legislation concerned with the use of vegetable protein foods in meat products and the meat product regulations of the EEC countries, Canada and USA, by A. Brincker.

Page 102 states that in Luxembourg "The addition of vegetable protein products to meat products is not permitted." Address: Luxembourg.

1169. Halpin, Anne Moyer. 1978. Unusual vegetables: Something new for this year's garden. Emmaus, Pennsylvania: Rodale Press. xv + 443 p. See p. 46-52. Illust. by Cynthia Hellyer. Index. 24 x 20 cm. [45* ref]
• ***Summary:*** The chapter titled "Soybean" (p. 46-52) starts with a beautiful, full-page illustration and contains excellent, accurate, detailed information by an organization that has done pioneering work with green vegetable soybean varieties (and organic gardening and farming) in America. Contents: History of vegetable soybeans in the

USA. Description of plant. Habit: Erect vs. prostrate. Preferred climatic conditions. Choosing the best variety: Kanrich (shatter resistant), Seminole, Rokusan [Rokusun], Jogun, Hokkaido, Fuji, Bansei, Extra Early Green, Early Green Bush, Fiskeby V Vegetable Bean, Pickett, Okuhara, Akita, Altona, Envy, black soybeans. Planting. Fertilizer (on poor soil can increase yield markedly). Inoculation. Plant protection against diseases and insects. Growing in a cold frame or greenhouse. When and how to harvest. Freezing. Basic cooking. Nutritional value. Serving as edamame, in the pods. Recipe ideas. Growing with high-lysine corn for succotash. Making coffee from dry soybeans. Seed sources: Burgess Seed and Plant Co. (Galesburg, Michigan); W. Atlee Burpee Co. (Warminster, Pennsylvania; Kanrich); Comstock, Ferre and Co. (Wethersfield, Connecticut); William Dam Seeds (West Flamboro, Ontario, Canada); DeGiorgi Co. (Council Bluffs, Iowa); Gurney Seed and Nursery Co. (Yankton, South Dakota; Disoy); Johnny's Selected Seeds (Albion, Maine; Envy, Altona, Traverse, Meredith, Giant Green); Kitazawa Seed Co. (San Jose, California; Extra Early Green); Le Jardin du Gourmet (West Danville, Vermont); Earl May Seed and Nursery Co. (Shenandoah, Iowa); Nichols Garden Nursery (Albany, Oregon); Stokes Seeds, Inc. (Buffalo, New York; Early Green Bush, Verde); Thompson and Morgan, Inc. (Farmingdale, New Jersey; Fiskeby V, Okuhara); and the Vermont Bean Seed Co. (Manchester Center, Vermont; Black Soybean)."

Soybeans are also mentioned in each appendix: 1. Directory of seed sources for the vegetables in this book (p. 385-89). 2. A seasonal planting guide (p. 390-91). 3. Soil preferences (p. 396). 4. Optimum climate conditions (p. 401). 5. Making the best use of your garden (p. 406-07). 6. Food values of exceptional vegetables (p. 414-15). 7. A quick kitchen guide: How to use these vegetables in your favorite dishes (and a few new ones!) (p. 420-21; Flavor: Buttery, unique. Use green beans in appetizers, hors d'oeuvres and snacks. Salads. Soups. Vegetable side dishes. Main dish casseroles and combinations. Can be frozen or canned).

Also discusses: Amaranth (p. 1-8, incl. grain amaranths). Cowpea (p. 140-45). Peanut (p. 276-301). Address: Rodale Press, Emmaus, Pennsylvania.

1170. Ontario Soya-Bean Growers' Marketing Board. 1978. A summary of board structure and marketing system. Chatham, Ontario, Canada. 24 p. 28 cm.

• ***Summary:*** The first 7 pages of this report are titled "Soybean: An historic review of Ontario production," being extracts from a paper presented by Dr. J.W. Tanner, Head, Crop Science Dep., Univ. of Guelph.

The soybean pioneer in Canada was Charles A. Zavitz at the Ontario Agricultural College, starting in 1893. By 1927 Zavitz had evaluated more than 100 varieties, most of them for at least five years. In 1923, the soybean program at Harrow was started by Dr. F. Dimmock. In 1927 Dr. Dimmock was transferred to the Ottawa research station, where he continued his work on soybeans and produced an excellent string of soybean varieties over the next 35-40 years including Acme, Comet, Crest, Mandarin, Capital, Merit, Kabott, and Pagoda. The Harrow research was continued by Caspar Owen who, in 1931, started to breed soybeans. "This program was to prove to be one of the most outstanding in North America producing such varieties as AK (Harrow, Harman, Harly, Harosoy and Harome)."

"Two short-lived crushing plants were established in the southwest part of Ontario in the mid-1930s, one of which was located at Colborne Street in Chatham. The late 1930s were critical years for the soybean in Ontario, and without the Maple Leaf Mills plant (which was primarily processing flax) and Toronto Elevators, there would have been no place to market the new crop.

"The establishment of soybeans as a major crop in North America was assured by the occurrence of World War II."

"With the construction of a new plant in Toronto in 1944, Victory Mills launched one of the greatest promotions of a crop ever witnessed in the Province of Ontario. Extension bulletins, newspaper advertisements, movies, newsletters and meetings inundated the farmers with information and enthusiasm. Acreage grew and by the early 50's the soybean had become a major cash crop in Southern Ontario and had its own marketing board. "

Also discusses: Information and product sources. Soybean processors (three in Ontario). Comparable duty rats on edible oil products. Ontario Soya-Bean Growers' Marketing Board–Appointments 1978, officers and address. Address: Box 1199 (175 Keil Drive North), Chatham, Ontario N7M 5L8, Canada.

1171. Rohmer, Richard. 1978. E.P. Taylor: The biography of Edward Plunket Taylor. Toronto, Ontario, Canada: McClelland and Stewart. 355 p. See p. 140-41. 24 cm. Index.

• ***Summary:*** In 1938 E.P. Taylor "had decided that Canadian Breweries Limited should invest in a subsidiary known as Sunsoy Products Limited, which processed soya beans on a small scale in Toronto."

During World War II, Taylor accepted a challenge offered to him by the Controller of Fats and Oils, Mrs. Phyllis Turner, who he considered to be a very competent and attractive woman. Mrs. Turner had tried unsuccessfully to get Canada's major packing and milling companies, such as Canada Packers and Maple Leaf Mills, to cooperate with her. At the time, Maple Leaf Mills did own and operate a small soya bean processing plant, but it was the only one in Canada. To make matters worse, so few soya beans were

grown in Canada that they had to be imported from the United States.

She asked to see Taylor (who was used to handling grain in his breweries), told him about the critical shortage of vegetable oils in Canada, and asked him if he would consider constructing a plant to process vegetable oils. He said that he would, for his brewery company was interested in doing more work to support the war effort.

Taylor told the board of Canadian Breweries that he thought the company should investigate this proposal. He did a lot of research himself. He traveled to Decatur, Illinois, and saw several soybean plants in operation. From his experience with Sunsoy he realized that a large unit, which included elevators and a crushing plant, could produce large amounts of oil. Moreover, he believed that soya bean oil would have a good future in Canada when the war was over.

Taylor has asked T.G. Ferguson to come into the soybean project, to conduct a detailed study, and to come up with a proposal that would estimate the costs of constructing the plant and operating it. Meanwhile, Taylor obtained an option on several acres of land on the waterfront at the eastern end of Toronto Harbor.

By early December 1943 he had made the decision to go ahead and build the plant. He "made a public announcement that a new $25 million project for the extraction and processing of vegetable oils would be built by Canadian Breweries" (p. 140-41).

In April 1944 initiated a new underwriting for Canadian Breweries Ltd. It was completed in mid-summer and raised over $1 million of expansion capital for the company, which included the new soya bean processing and vegetable oil plant, to be named Victory Mills Limited." It would be a Canadian Breweries subsidiary."

The new plant was an experiment with equipment not used before in Canada–mechanical screw presses coupled with a solvent extractor. Taylor had decided that the plant should be able to process about 3 million bushels of soya beans per year–even though only 874,200 bushels had been grown in Ontario in 1943. The vegetable oil and the protein feed to be produced by the plant were urgently needed commodities and Taylor was sure that Canadian farmers would respond by growing more soybeans. By 25 Nov. 1944 three of the five mechanical screw presses were in operation producing soya bean oil to meet the acute shortage and using soya beans imported from the USA to augment those produced in Canada. "The remainder of the presses came into service in 1945, on schedule" (p. 154-55).

In 1944 some $2,000,000 was spent to build Victory Mills.

Note: E.P. Taylor lived 1901-1989. Richard Rohmer was born in 1924.

1172. Shearson Hayden Stone Inc. 1978. Special survey: U.S. and Canadian soybean processing facilities. New York, NY. 8 p. Nov.

• ***Summary:*** The USA has a total soybean crushing capacity of 1,226 million bushels/year based on 330 available days. A ranking of the capacity of major U.S. soybean crushers is as follows (as of 1 Nov. 1977):

Cargill 224 million bushels/year. 18.3% of industry total.

Archer Daniels Midland 178 million bushels/year. 14.5% of industry total.

Central Soya 94 million bushels/year. 7.7% of industry total.

A.E. Staley 93 million bushels/year. 7.6% of industry total.

Ralston Purina 92 million bushels/year. 7.5% of industry total.

All Co-ops 232 million bushels/year. 19.0% of industry total.

Other 312 million bushels/year. 25.4% of industry total.

The leading soybean crushing states (in million bushels per year capacity) are: Illinois 258, Iowa 176, Minnesota 83, Tennessee 73, Indiana 70, Arkansas 69, Missouri 68, Mississippi 59, Ohio 50.

The individual soybean crushing plants with the largest capacity are (* = food grade plant): ADM* (Decatur, Illinois) 150,000 bushels/day. Quincy Soya (Quincy, Illinois) 120,000 bushels/day. Cargill, Inc. (Memphis, Tennessee) 100,000 bushels/day. A.E. Staley (Des Moines, Iowa) 100,000 bushels/day.

Canadian soybean crushers capacity (total 148,000 bushels/day) are: Maple Leaf Mills (Windsor, Ontario) 60,000 bushels/day. Victory Mills (Toronto, Ontario) 42,000 bushels/day. Canadian Vegetable Oil Processing (CVOP, Hamilton, Ontario) 33,000 bushels/day. Maple Leaf Mills (Toronto, Ontario) 13,000 bushels/day. Total: 148,000 bushels/day. Note: Maple Leaf Mills is the largest Canadian soybean crusher, with a total capacity of 73,000 bu/day.

1173. Stanley, D.W.; deMan, J.M. 1978. Structural and mechanical properties of textured proteins. *J. of Texture Studies* 9(1/2):59-76. [21 ref]

Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT, Canada.

1174. Tanner, J.W.; Hume, D.J. 1978. Management and production [of soybeans]. In: A.G. Norman, ed. 1978. Soybean Physiology, Agronomy, and Utilization. New York: Academic Press. xii + 249 p. See p. 157-217. Chap. 6. [64 ref]

• ***Summary:*** Contents. 1. Introduction. 2. Planting: Soil and climatic requirements, choice of cultivar, fertility, tillage and seedbed preparation, weed control, time of planting, row width and seeding rate, planting equipment,

inoculation, seed dressings. 3. Management during the growing season: Selection and use of herbicides, lodging, diseases, nematodes, insects, hail damage, minor elements, irrigation. 4. Harvesting. 5. Drying and storage. Address: Dep. of Crop Science, Univ. of Guelph, Guelph, ONT, Canada N1G 2W1.

1175. Ward, Gordon M. 1978. A history of the research station, Harrow, Ontario, 1909-1974. *Research Branch, Canada Dept. of Agriculture, Historical Series* No. 10. 72 p. [14 ref]

• ***Summary:*** This history contains an excellent section titled "Soybeans," which contains a detailed history of the Harrow station's research contributions to this crop, including its very important breeding program.

"A very modest variety-testing program was started at the Station by Dr. Dimmock in 1924 and continued until 1929 when it was taken over by Mr. C.W. [Casper / Cass] Owen. The first hybridizations of soybeans were made in 1931."

" In 1943 Mr. Owen released his first new variety called Harman, which was well received by the industry and was soon widely grown. It was an earlier-maturing soybean."

Harrow's first important variety was A.K. (Harrow). Other key Harrow soybean varieties and their dates of introduction are: Harman 1943. Harley 1948. Harosoy (1951). Hardome (1953). Harosoy 63 (1963). Harwood (1970). Harlon (1974).

Other key researchers at Harrow include Dr. A.A. Hildebrand (plant pathologist), Dr. B. Buttery (physiologist), Dr. R.I. [Richard] Buzzell (pronounced BUZ-ul, geneticist; he assumed responsibility for the soybean breeding program in 1962 when C.W. Owen retired), Dr. J.W. [John] Aylesworth (plant breeder). Note: Dr. Ward retired from Harrow in Oct. 1976. Address: Former staff member, Research Station, Harrow, Canada.

1176. Whigham, D. Keith; Minor, Harry C. 1978. Agronomic characteristics and environmental stress. In: A.G. Norman, ed. 1978. Soybean Physiology, Agronomy, and Utilization. New York: Academic Press. xii + 249 p. See p. 77-118. Chap. 4. [92 ref]

• ***Summary:*** Contents. 1. Introduction. 2. Light: Response to day length, response to light intensity, response to light quality, interaction between light and temperature. 3. Temperature: Effect of temperature on growth and development, on nitrogen fixation, on physiological processes, on seed quality, on protein and oil, and on pests. 4. Water: Effect of mulching, water deficit, excess water, atmospheric humidity. 5. Wind: Effect of wind, effect of windbreaks. 6. Pests: Birds and rodents, diseases, insects, weeds. 7. Conclusions.

The length of the dark period is the controlling factor in eliciting photoperiodic responses. Flowering occurs when the day length becomes shorter than the critical value for the cultivar. An excellent map (p. 79) shows the zones of best adaptation for cultivars of maturity groups 00 through X. Table II (p. 80) lists some cultivars classified by maturity group in North America: 00 (farthest north, mostly in Canada)–Altona, Portage. 0–Merit, Swift. I–Hark, Hodgson. II–Beeson, Corsoy. III–Calland, Williams. IV–Clark 63, Kent. V–Forrest, Hill. VI–Davis, Lee 74. VII–Bragg, Semmes. VIII–Hardee, Improved Pelican. IX (farthest south; southern Florida, Mexico, Cuba)–Jupiter. Address: 1. Dep. of Agronomy, Iowa State Univ., Ames, IA 50011; 2. Dep. of Agronomy, Univ. of Illinois, Urbana, IL 61801.

1177. Peterson, John B. 1978? History of Agronomy Department, Purdue University. Lafayette, Indiana: Purdue Univ. Dep. of Agronomy. 174 p. Undated. Unpublished typescript.

• ***Summary:*** Contents: Early interest in agricultural education and research in Indiana: Indiana legislative act of 1829, Indiana legislative act of 1835. The ought years [1900-1909]: Undergraduate and non-graduate teaching, graduate program, research activities, extension, professional activities. The teen years [1910-1919]: Undergraduate and non-degree teaching, graduate program, research activities, extension, professional activities. The twenties: Undergraduate and non-degree teaching, graduate program, research activities, extension, professional activities. The thirties: Undergraduate and non-degree teaching, graduate program, research activities, extension, professional activities.

Alfred T. Wiancko is mentioned throughout: In 1903 he joined Purdue as Associate Professor of Agronomy in the School and Assistant Agriculturalist in the Station. He would later become the first head of the Agronomy Department (p. 10). "Thus, by 1903 four strong people, who would build and shape the future of Agronomy at Purdue (Wiancko, G.I. Christie, Martin L. Fisher, and Samuel D. Conner) were now on board... In the 1902-03 Catalogue... Wiancko had been promoted to Associate Professor Agriculture... At the Station, Wiancko was assistant to W.C. Latta in the agricultural program. Wiancko took Latta's place as agriculturist in the Station in 1905" (p. 11). "The title 'Agronomist' began to appear in 1905 with the listing of Wiancko as Associate Professor of Agronomy." (p. 11). In 1907-08 courses in soils and crops were grouped under the main heading of 'Agronomy.' This was the first indication of an independent Agronomy curriculum. Fisher and Wiancko taught the six courses. In 1908 "Wiancko was listed "in charge" of Agronomy, a possible indication that in the School as well as in the Station, Agronomy was considered to be a department" (p. 12).

Graduate program: "As early as 1882 the annual register described an M.S. program based on at least three years of study of an 'advanced science,' passing an exam, and submitting a thesis... In 1894 Charles S. Plumb became responsible for the graduate program in Agriculture..."

Research activities: Research in soil improvement concerned the effects of adding organic matter, "acid" phosphate, raw rock phosphate and muriate of potash.

Extension: In 1900 the Indiana Corn Growers Association was formed. In 1939 Lowell S. Hardin wrote his thesis at Purdue on this history. G.I. Christie was one of the charter members. Starting in 1882 the State Board of Agriculture sponsored the Farmers' Institutes. Latta became a principal leader in the growth of the institutes. "The first work in Indiana to be known by the name 'Extension' was authorized by the Purdue Experiment Station in 1906 following the Smith Act by the Indiana General Assembly in 1905. G.I. Christie was promoted from Assistant in Field Crops to Associate in Agricultural Extension, a new department of the Experiment Station in 1906. This dynamic, articulate man was well fitted for the needs of his time. An excellent organizer, inspirational speaker, and demanding leader, he caused extension to flourish under his leadership. During the winter of 1906 every county in the state was scheduled for Institute meetings... Christie became Director of the Extension Department in the Experiment Station in 1907.

As the 1920s began, Wiancko was still head of the Soils & Crops Department of the Station. In 1924 Keller E. Beeson (who graduated from Purdue in June 1922) was added to the agronomy extension staff. "Beeson and Pence were excellent teachers, helpful, persuasive, and articulate with each possessing a great sense of humor. Their enthusiasm and love for their work was always obvious." Christie and Beeson were both leaders in the International Crop Improvement Association, founded in 1919. "Christie and a handful of leaders from other corn belt states launched the seed certification idea. In Indiana the seed certification program was introduced in 1920 by the Indiana Corn Growers Association in cooperation with Purdue University..." Note: By the spring of 1929 G.I. Christie had left Purdue and was at Guelph Agricultural College, Guelph, Ontario, Canada.

"A major program assigned to Beeson in 1924, in addition to seed certification, was soybeans... In 1924 the soybean acreage in Indiana was less than 200,000. Most were cut for hay. Combines were not common until after 1930. Beeson and Pence talked up the potential of soybeans as a cash crop for all... By Beeson's retirement in 1962 the state acreage had grown to 2,750,000, a spectacular example of the results of public research and education, due largely to Beeson and Pence."

Starting in the 1930s, G.H. Cutler was active in soybean crop improvement.

"Soybeans were grown for grain by 485 farmers in 1919. By 1939 there were 1,377,000 acres in the state.

Note added by Sandy Spitznagel, secretary to the head of the Dep. of Agronomy: These men followed but overlapped with Prof. Wiancko: Cutler joined the staff in 1926. Albert Probst arrived in 1936 as USDA soybean man, did his PhD while at Purdue, and spent his professional life at Purdue as our "Mr. Soybean." Talk with Sandy. 2000. Jan. 10. This edition of the manuscript, finalized in about 1978, has gone through two subsequent revisions, one by Dr. Fred Patterson in the 1980s and another by Dr. Marvin Phillips currently. All three manuscripts are located at Purdue University Department of Agronomy, in the office of the department head, in a central file under "department history." Address: Dep. of Agronomy, Purdue Univ., West Lafayette, Indiana.

1178. Ontario. Ministry of Agriculture and Food. 1979. Soybeans, cereals and land management. Toronto, Ontario, Canada. 39 p. Southwestern Ontario Farmers' Week at Ridgetown College of Agricultural Technology. Held Monday Jan. 8, 1979.

• ***Summary:*** Contents: Feature address: Soybean market outlook, by Dr. K.L. Bader. Soybean production: Phytophthora rootrot control, by R.E. Pitblado. Soybean variety update, by Dr. R.I. Buzzell. Row widths for soybeans, by J.C. Schleihauf. Problem weeds in soybeans, by Dr. A.S. Hamill. Soybean and cereal marketing: Transportation and storage in Ontario, by J.A. Whitelaw. The Ontario oilseed market, by O.F. McGregor. New cereal varieties, by Dr. A.E. Smid. Land management: Ditchbank management, by M. Sojak. Machinery program for good soil management, by Hans Harms. Soil erosion in Ontario–Who should care?, by Dr. W.T. Dickinson. Implications of the Pluarg studies, by Dr. R. Frank. Address: Ontario, Canada.

1179. **Product Name:** Vitasoy (Soymilk).
**Manufacturer's Name:** Vitasoy (USA) Inc. (Importer). Made in Hong Kong by Hong Kong Soya Bean Products Co. Ltd.
**Manufacturer's Address:** San Francisco, California.
**Date of Introduction:** 1979. January.
**Wt/Vol., Packaging, Price:** 250 ml Tetra Brik Aseptic carton.
**How Stored:** Shelf stable; refrigerate after opening.
**New Product–Documentation:** Spot in Soyfoods. 1982. Winter. p. 56. "Vitasoy in America." Shurtleff & Aoyagi. 1984. Soymilk Industry & Market. p. 32-33, 43-44, 130-53. "In January 1979 Yvonne and Irene Lo incorporated The Soya Bean Products Co., N.A. (SBPC) as a marketing company for HKSBP's products in North America. They opened headquarters that month on Bush Street in San Francisco and began immediately to market and distribute

plain and malted Vitasoy in Canada in 250 ml Tetra Brik Cartons. In February 1981 they introduced the same products to the USA, immediately after the U.S. Food and Drug Administration lifted its ban on aseptic Tetra Pak type cartons (because of a disproven concern over hydrogen peroxide residues from sterilization). Thereafter, many major Asian soymilk manufacturers also began to import soymilk to America."

1180. Wang, H.L.; Mustakas, G.C.; Wolf, W.J.; Wang, L.C.; Hesseltine, C.W.; Bagley, E.B. 1979. Soybeans as human food: Unprocessed and simply processed. *USDA Utilization Research Report* No. 5. iv + 54 p. Jan. Slightly revised, July 1979. Jan. No index. 28 cm. Compiled for USAID. [50+ ref]

• ***Summary:*** Contents: Introduction. 1. Soybean food uses in Asia. China: Soaking dry soybeans, tou chiang (soybean milk), tou fu (soybean curd), processed tou fu products, tou fu pi (protein-lipid films), huang tou ya (soybean sprouts), whole soybeans, fermented soybean foods, production and consumption. Japan: Tofu (soybean curd), kinugoshi tofu, processed tofu products, yuba (protein-lipid film), soybean milk, gô (ground soybean mash), daizu no moyashi (soybean sprouts), whole soybeans, fermented soybean food, production and consumption. Korea: Tubu (soybean curd), processed tubu product, soybean sprouts, whole soybeans, soybean flour, fermented soybean food, production and consumption. Indonesia: Tahu or tahoo (soybean curd), bubuk kedele (soybean powder), tempe kedele, tempe gembus [the name in Central and East Java for okara tempeh], oncom tahu [the name in West Java for okara onchom], other soybean products (soybean sprouts, green soybeans, roasted and boiled soybeans, kecap {soy sauce}, tauco {soybean paste}), food mixtures, production and consumption. Thailand: Tofu *(tauhu),* soy sauce, green soybeans in the pods *(tourae).* Philippines: Soybean sprouts, soybean coffee, soybean cake, soybean milk, tou fu and processed tou fu products, production and consumption. Burma. India. Malaysia. Nepal. Singapore. Sri Lanka (Ceylon). Vietnam. Middle East. References–Soybean food uses in Asia.

2. Soybean food uses in Africa. Ethiopia: Injera, wots and allichas, kitta, dabbo, dabokolo, porridge. Kenya. Morocco. Nigeria: Whole soybeans, soybean paste, corn-soy mixtures (soy-ogi). Tanzania. Uganda. Production. References–Soybean food uses in Africa.

3. Soybean food uses in Europe and U.S.S.R.

4. Soybean food uses in Latin America. Argentina. Bolivia. Brazil. Chile. Colombia. Ecuador. Guyana. Paraguay. Peru. Uruguay. Venezuela. Mexico: New village process, commercial developments. Honduras. Costa Rica. Panama. Dominican Republic. Jamaica. Haiti. Trinidad. References–Soybean food uses in Latin America.

5. Soybean food uses in North America. United States. Canada. References–Soybean food uses in North America.

6. Soybean food uses in Australia. 7. Summary of soybean food uses. Traditional soybean foods: Soybean milk, soybean curd and processed soybean curd products, protein-lipid film, soybean sprouts, tempe (tempeh), green soybeans, boiled soybeans, roasted soybeans, soybean flour, soy sauce, fermented soybean paste, fermented whole soybeans, natto, fermented soybean curd. Experimental soybean foods: Whole soybean foods, soybean paste, soy flour, soy beverage. Production and consumption.

8. Simple village process for processing whole soybeans: Equipment, process, sanitation requirements, quality of product, evaluation of product in formulas and procedures for family and institutional use in developing countries. NRRC village process. 9. Industrial production and selling prices of edible soybean protein products.

10. Barriers to accepting and using soybeans in food: Availability. Cultural and social factors. Texture. Flavor. Nutrition and food safety. Technology development. Technology transfer. Address: NRRC, Peoria, Illinois.

1181. [Shurtleff, William; Aoyagi, Akiko]. 1979. Soyfoods buyer's guide [Tofu, tempeh and miso shops in the USA and Canada]. *Whole Foods (Berkeley, California)* 2(1):42-44. Jan.

• ***Summary:*** A listing of all companies in the USA and Canada, by food type, by state.

Note: This is also the earliest English-language publication (one of two in this issue) seen that uses the term "Soyfoods" in the title. Shurtleff and Aoyagi compiled this list and gave *Whole Foods* permission to use it free of charge. Address: P.O. Box 234, Lafayette, California 94549.

1182. Brinton, William F., Jr. 1979. Soybeans–The ecology of productivity. *Acres U.S.A.* Feb. p. 8-9.

• ***Summary:*** This paper was presented recently at the International Federation of Organic Agriculture Movement (IFOAM) meeting in Montreal, Quebec, Canada. The author found that "soybeans responded more favorably to nitrogen additions stemming from organic sources than to equivalent amounts from chemical sources. He also found that undigested manure can exert initial inhibitory effects on root development, this when compared to composted manure."

1183. Sanderson, J.B.; Sterling, R.; MacLeod, J.A. 1979. Soybean trials. *Research Station Charlottetown, P.E.I., Research Summary* For the year 1978. See p. 81-82. (Agriculture Canada Research Branch).

• ***Summary:*** Soybeans are discussed in the section titled "Protein and New Crops." Six soybean varieties were tested. "Recently developed soybean lines and varieties are extending the area of adaptation. Soybeans planted in early

June were harvested with a plot combine [a small combine for harvesting small test plots] at three locations near Charlottetown in mid-October. The early maturing varieties were in the range of 16 to 18% moisture. The line *Maple Presto,* which may be licensed in 1979, gave good yields and matured well in 1978. This variety is approximately one week earlier in maturity than *Maple Arrow,* the only variety currently recommended for the Atlantic Region." Address: Prince Edward Island, Canada.

1184. Lischenko, V.F. 1979. World production of food proteins: Situation, structure, trends. *J. of the American Oil Chemists' Soc.* 56(3):178-80. March.
• ***Summary:*** A photo shows Lischenko. Address: Lead, Section of Agricultural Problems Inst. of USA and Canadian Studies, Khlebny pereulok 2/3, Moscow, USSR.

1185. *Plenty News (Summertown, Tennessee).*1979. Soybean project in Guatemala highlands. 1(2):1-3. March.
• ***Summary:*** Plenty was incorporated on 4 Oct. 1974 in the State of Tennessee as a non-profit relief and development corporation. In Solola, Guatemala, Plenty will "be setting up a village-scale soy dairy to produce 100 pounds of tofu and 40 gallons of soy ice bean (ice cream made from soymilk) three times a week. The dairy will supply free ice bean for local school lunch programs. It is intended that the dairy will produce low-cost, high-protein foods and become a local cottage industry, run by indigenous people of Solola. This project is co-sponsored by the NGO Division of the Canadian International Development Agency [CIDA] as phase one of an Integrated Development Project..." Some 1,500 pounds of soybeans have been donated by UNICEF. Suzy Jenkins is one of the soyfood teachers.

"In cooperation with UNICEF and the International Soybean Program (INTSOY), Plenty has screened 20 varieties of soybeans, determining which ones would grow at 6,000 feet in the Guatemalan highlands... The beans were successful, yielding up to 40 bushels per acre. Approximately 100 farmers from San Andreas Itzapa and neighboring towns will be planting trial patches of soybeans in their own fields this coming spring. Plenty will supply them with the seed of the best-performing varieties."

Contains many purple photos of soybeans and soyfoods in Guatemala, including: Suzy Jenkins carrying water in a pot on her head for a soymilk demonstration. A Guatemalan man standing waist-deep in a field of soybeans with a bearded Farm member looking on, smiling. Guatemalan women crushing soybeans in a metate, filtering out soymilk using a cloth sack, then drinking the soymilk. A little girl drinking soymilk from a big cup. Planting soybeans. Amaranth plants.

Note 1. This is the earliest document seen (April 2004) that mentions Solola, Guatemala, in connection with soy.

Note: This is the earliest document seen (Jan. 2003) concerning Plenty Canada. Address: 156 Drakes Lane, Summertown, Tennessee.

1186. Lambert, J.W. 1979. [Sven] Holmberg, soybean pioneer in the far north. *Soybean News* 30(3):4. April.
• ***Summary:*** "I met Sven Holmberg for the first time in July, 1951. He was visiting soybean breeding projects in northern United States to exchange ideas and germplasm. That summer of 1951 was one of the coolest in Minnesota records, but Sven was uncomfortable with our 'heat.' He was, of course, accustomed to the summer weather of his native city, Norrkoping, Sweden, where for a decade or more he had been breeding soybeans that would flower under very long photoperiods and tolerate relatively low midsummer temperatures.

"Holmberg had been commissioned by his government to attempt to develop soybean varieties which could be produced in Sweden, and he had correctly identified coolness during the reproductive stages as the most important temperature limitation to successful culture of the crop in his country. Accordingly, he decided to search for genetic tolerance to low temperatures at flowering time. His search led him to northern Asia in the region around the Sea of Okhotsk, where soybeans have been grown for a long time and where the maritime summer days are frequently cloudy and cool.

"The germplasm he brought back from this region, when crossed with 'early' genotypes from other sources, became the basis for the varieties 'Fiskeby V,' released in 1968, 'Bravalla,' released in 1975, and 'Träff,' released in 1978. These varieties have become world-wide standards for adaptation to long, cool summer days. On the U.S. maturity scale, Fiskeby V is earlier than our earliest Group 00 varieties so perhaps could be considered 'Group 000.' At Norrkoping, which lies at 58º 36' N. Lat. and has a mean July temperature of about 61º F, Bravalla and Träff average six and eleven days earlier than Fiskeby V, respectively. To emphasize this earliness still further, the variety Träff in 1978 produced ripe seed at Umea, Sweden. Umea is located at 63º 48' N. Lat. and in 1978 had a mean July temperature of 57º F. On contrast, Chicago, Illinois, lies at 41º 47' N. Lat. and has a long time average July temperature of 76º F.

"The Holmberg varieties are low growing (15-25 inches) and yield only modestly (15-35 bushels per acre), but the marvel is that they mature seed at all under the very long photoperiods and the low average summer temperatures of central Sweden. I am sure that Sven Holmberg had few illusions of Sweden becoming a major producer of soybeans, but he was interested in showing that the crop could be produced as a nutritious home vegetable and a usable source of protein in military rations. This he accomplished, and at the same time he developed

germplasm which has proved useful in several other countries.

"Holmberg has been generous in sharing his germplasm with other soybean breeders. Several Canadian workers have used his lines in their crosses. For example, one of the parents of 'Altona' is a Holmberg line. Northern European workers have also made good use of his germplasm.

"Through the years Sven and I have exchanged materials for use in our respective breeding programs, and we have kept in frequent touch with each other. He is a man of warm personal charm and engaging intellect. Early on we enjoyed a number of common interests, but I suppose the one thing that cemented our friendship was our mutual interest in soybeans. Once, in 1956, I had the pleasant opportunity of visiting Norrkoping and seeing his research plots at Fiskeby. I was impressed then as I still am, twenty-three years later, with the achievements of this modest Swede in adapting the soybean to the conditions of the far north. Sven is presently in his eighties, but is still supervising an extensive soybean breeding program."

Photos show: (1) Sven A. Holmberg. (2) J.W. Lambert. Address: Prof., Dep. of Agronomy & Plant Genetics, Univ. of Minnesota.

1187. **Product Name:** Kome Miso.
**Manufacturer's Name:** Shin-Mei-Do Miso Co.
**Manufacturer's Address:** 5 Wren Road, Denman Island, BC, Canada V0R 1T0. Phone: 604-335-0253.
**Date of Introduction:** 1979. April.
**Ingredients:** White rice koji, soybeans, salt, water.
**New Product–Documentation:** Letter/Order from Lulu Yoshihara. 1976. Nov. She orders a copy of *The Book of Miso, Vol. II.*

Letter from Lulu Yoshihara. 1981. Sept. 9; Martin. 1982. Comox District Free Press. Sept. 17; Leviton. 1983. Soyfoods. Winter. p. 36-37; Shurtleff & Aoyagi. 1983. Book of Miso. 2nd ed. p. 238. The company was started in April 1979 by Lulu Yoshihara. Leviton. 1982. In a Small Bright Building. Yasuo (nickname "Yoshi") grew up on a farm in Japan and already knew how to make miso. The shop can make about 10,000 lb of miso in a typical year. Yasuo & Lulu Yoshihara run the business.

Talk with Yasuo Yoshihara. 1996. March 22. Their first miso was a white rice miso named "Kome Miso." It was sold only to natural- and health food stores. His business is active and growing. They make brown rice miso and barley miso, each sold in 450 gm and 4.5 kg plastic tubs. Lulu does the bookkeeping.

1188. Smith, Robert A. 1979. Delsoy Products (1943-1963) (Document part, I) (Interview). In: The Ford Experimental Laboratory and the "Square House." Conducted by Donald V. Baut of Dearborn Historical Museum, May 31. 72 p. transcript. See p. 44-72.

• ***Summary:*** By the 1940s, many U.S. states had a fill [filled] milk law, which prevents the blending of vegetable fats (which cost about half as much as butterfat) with dairy products to make any product which simulates a milk product–such as ice cream or whipped cream. During World War II, a restriction stated that cream could not contain more than 18% butter fat, in order to conserve butter fat which was in short supply. To circumvent this law, two partners in Chicago, Illinois, Eric Russell Swanson (the production man, who owned the Swanson Dairy in Chicago) and Herbert Marshall Taylor (the promoter and salesman) formed the Russell Taylor Company and developed a whipping cream product made by adding 17% vegetable fat to cream containing 17% butterfat. It was a very successful product in the Chicago area and was eventually bought out by the Bowman Dairy Co. So they decided to come to Michigan, which didn't have a filled milk law, and develop a similar product–which they named Devonshire Topping. It, too, was very successful, so the Michigan dairies had the state legislature pass a law to prohibit it.

Taylor had read about Henry Ford's soybean milk through the publicity it was getting. He visited Bob Smith at the Carver Laboratory and asked if Smith could make whipping cream from soybeans. Smith had never tried this before but in a few days work at the Laboratory (using a soymilk process first developed at Moir House Lab) he had samples that Taylor was very pleased with. Taylor said he wanted to start producing the product commercially in Michigan using the Ford soybean base. Henry Ford said that he did not want to get into the business of producing soybean milk for sale, but he gave Smith permission to give Taylor small amounts to experiment with and to work with Taylor to design a plant to produce the soy base product in Dearborn. Ford wisely warned Smith to be very careful with Taylor (who looked like a promoter) and not to get involved in any stock deals.

Starting in the spring of 1943, Smith worked in his spare time, designed all the equipment (based on the design of the equipment in the Carver Laboratory but on a larger scale), and built a plant in the old Livonia Dairy at 2001 S. Telegraph Road (at Harvard) in Dearborn. Several other people also worked on the job. The plant's initial capacity was about 1,000 gallons per day (one shift). The equipment in Ford's Carver Lab was designed to produce 150 gallons of soymilk per day in a small non-stop stream. The funds needed to equip and establish the plant in Dearborn came from profits made by selling Devonshire Topping in Detroit. "In the latter part of 1943 we began production [of soy-based whip topping] in the [Livonia] dairy. We had lots of problems getting the equipment because of the war and the scarcity of materials. Eventually we got the thing going. We started experimentally, selling across state lines to test the law. We advised the Agricultural Department what we were

doing. We shipped to Toledo and we sold in Detroit. The product sold very well. Of course, there was no whipping cream. We just couldn't make enough of the product to supply the demand."

To make Delsoy they started by making soymilk from low-fat soybean meal, then added vegetable oil and liquid sugar (a blend of a small amount of corn sugar and a larger amount of sucrose from either sugar cane or sugar beets) to make about 3,000 gallons a day of the base for the topping. The protein produces the foam that makes the whipping possible. The fat produces the stabilizing that keeps it whipped. The sugar is added to give a sweet flavor.

The name Delsoy was Herbert Marshall Taylor's idea. The filled milk product that his company had been selling previously in Detroit was named Devonshire Topping. But that name was contested by the people at Devonshire-Melba Co. and they prevailed. Taylor was going to have to change the name of his product, and at the same time he was changing it from a dairy-based product to a soy product–so he thought of "delicious soy" or "Delsoy." In addition, the first letter was the same as the D in Devonshire, which would help in advertising the new product to former customers. The Russell Taylor Co. manufactured Delsoy for the first year or so, until the company name was changed to Delsoy Products. The company name was composed of Eric Russell Swanson's middle name and Herbert Marshall Taylor's last name.

Herbert Marshall Taylor "was the only son of a superintendent of the Canadian Pacific Railway. He had been raised in kind of a royal fashion. He rode around in private railroad cars and lived pretty well. He was very expert at spending money at a high rate of speed, which was one of our big problems after the company was formed. He spent money like it was going out of style and we always had trouble."

"Harvey Whitehouse was a dairyman in Detroit and he was hired to operate the Russell Taylor plant. It was in the Grand Trunk Terminal warehouse in Detroit [Russell-Taylor Inc., 1951 East Ferry Ave. at 3rd Ave, Detroit 11]. He didn't join us until after our plant was completed in Dearborn. When our Dearborn plant was completed, they shut down the warehouse plant in Detroit and he came out and operated the Dearborn plant. At that time I was working at Fords [the Ford Motor Co.] and I was just spending part of my time at the Delsoy product... it was somewhere in the fall of 1943 I believe... Harvey Whitehouse was hired because he was qualified to operate both refrigeration and steam equipment... He was hired from the Rosebud Dairy in Detroit to operate the equipment at the Russell Taylor warehouse on Third Avenue in Detroit. Russell Taylor had... rented an existing plant there, used it on a part-time basis, and paid for the use of the equipment on a per-gallon basis.

"Now when we started Delsoy Products, we had our refrigeration and we had hired our own people to deliver it... We never sold Delsoy out of that warehouse [on Ferry Ave. in Detroit]. All the Delsoy we sold out in the Dearborn plant. That was the Devonshire Topping that we sold out of the Ferry Avenue warehouse."

H.M. Taylor closed down Devonshire Topping because "he got in trouble with the War Food Board for using too much milk solids in his product. He used about four times his allocated amount of milk solids and was sued by the government and was found guilty. He and Swanson and the rest of the company were fined. They had to stop the operation on account of that." That was when they shut the warehouse in Detroit. At about the same time the filled milk law went into effect and they couldn't produce it any more. Delsoy had been in production for about a year before the lawsuit was settled with the government. Taylor got the larger of the two fines because he was the instigator and leader of the idea. "We were definitely anxious to get Taylor out of the company because he was definitely running us into the ground with his wild spending." Bob Smith put up the money for Taylor to keep him out of jail and in exchange took over Taylor's stock in the company–which gave Smith control of two-thirds of the company. But he decided it would be best to split the ownership among himself, Swanson, and Whitehouse. Address: Smith: 26351 Hollywood Ave., Roseville, Michigan 48066; Baut: Dearborn Historical Museum, 915 Brady St., Dearborn, Michigan 48124. Phone: Smith: 313-777-5394. Baut: 313-565-3000.

1189. Smith, Robert A. 1979. Delsoy Products (1943-1963) (Document part, II) (Interview). In: The Ford Experimental Laboratory and the "Square House." Conducted by Donald V. Baut of Dearborn Historical Museum, May 31. 72 p. transcript. See p. 44-72.

• ***Summary:*** Bob Smith left the Ford Motor Co. in Aug. 1945 to work full time with Delsoy Products. Taylor and Smith each owned 1/3 of the stock, Swanson owned 1/6, and various other people owned the remaining 1/6. Swanson and Taylor put in the money and Smith contributed the know-how. Delsoy Topping sold very well because no dairy whipping cream was available. They shipped to Toledo, Ohio, and sold in Detroit, Michigan.

Taylor and Swanson were fined by the federal War Food Board for using too much milk solids in their original dairy-based whipping cream. Smith offered to pay off Taylor's $6,000 fine to get Taylor out of the company. Taylor was a lavish spender and the source of much conflict. At one point he tried to grab a majority of the stock for himself. Taylor's interest in the company was to develop a product and then sell the stock to make money on the stock rather than on the sale of the product. Smith, Swanson, and Whitehouse ending up owning Delsoy Products.

Originally Delsoy Topping was sold in paper containers purchased from the Sutherland Paper Co. in Kalamazoo, Michigan. Delsoy bought the containers by the carload, 300,000 at a time. When Sutherland went out of business, Delsoy switched to buying containers from the Crown Cork and Seal Co. in Philadelphia. During World War II Crown Cork and Seal had developed a pressurized metal can to use for insecticide sprays by the military. Delsoy was the first to realize that the can's unique valve (produced by the Super Whip Co. in Chicago and used with nitrous oxide gas) made it suitable for whipping cream. So the company modified its formula for Delsoy Topping, put it in this pressurized can, and in 1946 or 1947 named it Presto Whip. They were the first company to ever put a topping in a pressure can and sell it. It immediately became a huge success, was widely advertised, and was soon sold by every chain store in the area. Soon Delsoy Products was working 3 shifts, making 25,000 cans a day–sold mostly in the Detroit area. Soon they were selling the products over a range of 350 miles in lower Michigan, Ohio, and parts of Indiana, Pennsylvania, and New York. By 1963 they had 23 distributors. One of their first big customers was Awrey Bakery, a prestige account, that bought 300 gallons/day, 5 days a week. They mixed equal parts of Delsoy and dairy whipped cream to get a superior product for use in cream puffs. Initially they refrigerated all products. Later they would freeze everything immediately and keep it frozen until it was distributed to the stores.

The process for making Delsoy Topping was a very technical and difficult one–even for people with much experience in making it. There was a patent application made under the name of Henry Ford and R.A. Smith but it was probably never completed or issued. Initially the soybeans were grown by Ford but after Delsoy Products began, "low temperature soybean meal" with high protein solubility and most of the fat removed was purchased from Central Soya. Being a vegetable product, it was subject to less bacterial deterioration than cream products. To further extend the shelf life, Smith adapted a machine that was developed for the sterilization of orange juice then used it to heat the product to 300 degrees for 1.5 seconds, followed by rapid cooling to produce a sterile product. Delsoy competed very favorably with similar dairy products. It was less expensive and each can contained 40% more product (10 oz vs. 6-7 oz), and it had superior whipping qualities with much higher whipped volume. Initially the can and valve cost about $0.11 and the product (Presto Whip) cost $0.06. It retailed for $0.29. At one point a chocolate flavor was introduced, but it was soon discontinued. They sold Delsoy Topping to institutions, in quarts to smaller bakeries, 5 gallon cans to larger bakeries, and 10-gallon cans to Awreys.

Zazu Pitts, a famous actress, "health addict," and close friend of Gloria Swanson got interested in the product, visited the Carver Lab to try the soybean milk, and for a while considered buying a franchise.

After Presto Whip was launched, Delsoy Products began a new company named Delsoy Distributors. The first big product they distributed was Hawaiian Punch. Later they started the Smith, Swanson, Whitehouse Brokerage Co. and distributed Good Luck Margarine, Red Star Yeast, Hawaiian Punch, etc.

In 1963 Bob Smith left the company; Harvey Whitehouse and his son David bought Bob's stock. Today Delsoy Products is named Whitehouse Products. Note: Bob Smith was born on 1 April 1913, so he was age 66 at the time of this interview.

Update: Talk with Richard B. Folsom of Canton, Michigan. 1992. Jan. 31. According to Don Baut, a curator at the Dearborn Historical Museum, Whitehouse Products was purchased in 1983 by C.J. Christoff & Sons of Lowell, Michigan.

Talk with Bob Ely at Chadalee Farms Inc. 1992. Feb. 4. The company is now called Chadalee Farms, Inc. and Christoff Gourmet Foods is one division. The only non-dairy product they still make that they acquired from Whitehouse Products is Chadalee Farms is imitation sour cream. They also private label it under other brands, such as Nuggett, Pocahontas, etc. Within the past few months they have discontinued the whipped toppings and the aerosol toppings. When they bought the products from Whitehouse they changed the brand name from Whitehouse to Chadalee Farms. Whitehouse and Chadalee also packed the products under many national brands. For more details, he suggests contacting Dave Whitehouse in Dearborn, Michigan, at 313-562-0242. Dave now works for Chadalee as a salesman. Address: Smith: 26351 Hollywood Ave., Roseville, Michigan 48066; Baut: Dearborn Historical Museum, 915 Brady St., Dearborn, Michigan 48124. Phone: Smith: 313-777-5394. Baut: 313-565-3000.

1190. Lifestream Natural Foods, Ltd. 1979. Lifestream (Document part). In: Midwest Natural Foods Distributors, Inc. 1979. Catalog 13. Spring, 1979. Ann Arbor, Michigan. iv + 290 p. See p. 113, 249-51.

• ***Summary:*** Packaged goods (p. 113): Lifestream: Carob mint fudge, Cashew halvah, Hiker's bar, Mega bite bar, Sesame dream bar, Sunshine honey bar. These retail for US$0.38 to $0.46 each.

In the refrigerated section: Full-page ad (p. 249). "Lifestream natural fruit 'n nut delites!" No sugar. No corn syrup. No fillers. No chemical additives or preservatives! Lifestream–Nourishing the roots of society. A photo shows packages of 4 of the products (each with both English and Canadian text): Almond delite. Strawberry delite. Raspberry delite. Peach delight. Several of these products themselves are also shown, together with the natural ingredients from which they are made.

Full-page ad (p. 250). “Essene Bread. Wholesome. Nutritious. Uncompromising quality. Organically grown food that tastes good.” A large label of this 1-lb loaf of bread is shown. The only ingredient is sprouted organically grown wheat–no salt. “There are now six Essene breads to choose from: Regular, raisin, fruit, seed, rye, and fruit muffins.”

Refrigerated products: Lifestream. Delights & Pastries: Almond, peach, raspberry, strawberry, butter tarts, peanut butter cookies. These retail for US$0.39 to $0.42 each.

“Sprouted grain breads (organic). Refrigerated or freeze: Essene fruit muffins, bread, pumpernickel-rye, raisin, seed bread, Lifestream Essene fruit cake, 8 grain sprouted bread, sesame sprouted bread, sunflower sprouted bread.” These breads retail for $1.37 to $1.76 each. Address: [Richmond, BC, Canada].

1191. **Product Name:** Tempeh.
**Manufacturer’s Name:** Farm Foods.
**Manufacturer’s Address:** R.R. #3, Lanark, ONT, K0G 1K0, Canada. Phone: 613-278-2215.
**Date of Introduction:** 1979. June.
**Ingredients:** Soybeans, water, culture.
**Wt/Vol., Packaging, Price:** 12 oz perforated plastic bag (not vacuum packed).
**How Stored:** Frozen.
**New Product–Documentation:** Talk with Allan and Susan Brown. 1998. May 11, followed by a detailed letter from Allan. In the late summer of 1974, having met and become engaged on the Wisconsin Farm, Allan and Susan hitch-hiked to The Farm in Summertown, Tennessee, where they were married later that year. Susan writes: “When we arrived at the Gate, it was Cynthia and Albert Bates who graciously took us in and shared their humble tent-house on Hickory Hill. (They even moved next door for a weekend to make room for my parents when they came from Boston to attend the wedding.) While we were staying there, Cynthia sometimes took me to the soy dairy, where she and Alexander Lyon were experimenting with ways to make tempeh. They had heard about it from Dr. Hesseltine in Illinois. I learned to make tempeh starter on rice from Cynthia. Little did I know then that I would eventually make my livelihood making tempeh!

“Our next experience with tempeh was in January 1976 while we were visiting my parents in Belmont, near Boston, Massachusetts. On my mother’s shelf was a tempeh kit–a small package containing dry split soybeans, starter, and instructions. She had ordered it via a Farm catalogue. The culture was spores mixed with starch, to make such small amounts easier to measure. I made tempeh on the water-heater, in various containers. The most effective was a covered casserole (very Earth-friendly compared to the disposable plastic bags we now use!) The results were delicious, although there were a few patches of dark gray and some dried out places where the culture hadn’t grown.”

In 1978 Allan learned how to make tempeh from Mary Hubbard (who was from The Farm in Tennessee) in the kitchen on The Farm in Canada. Mary and her husband Nick had their home base in Tennessee. From the Farm-affiliated Denver Center (in Colorado), where they had been making tempeh, they had come to Lanark, Ontario, to help out at The Farm, while most of the community members were away at Thunder Bay planting trees as a fund-raiser for Plenty and while Allan and Susan were bonding with a newborn baby given to them by a young lady who did not want to keep her baby. For about 3 weeks Mary and Nick made “every kind of soy product under the sun, including tempeh.” A good friend of Allan’s named Paul Smith ran Baldwin Natural Foods–the hottest macrobiotic store in Toronto. Paul had seen the tempeh made by Robert Walker at Baldwin Natural Foods; he was making about 50 lb/week of tempeh shaped like a doughnut. Allan thought there was a market for a second tempeh product, so in the summer of 1979 he started making tempeh under the Farm Foods label. Allan photocopied a label with a bamboo border, and sold the tempeh at Baldwin Natural Foods. Allan made the tempeh in the community kitchen and incubated it on the rafters above the wood stove in the kitchen. There wasn’t a lot of agreement on The Farm to make tempeh commercially. There was a constant struggle for the available energy from Plenty and from Farm Foods. After about 6 months, during which they made only 2-3 very small batches of tempeh and sold them to just one store (Baldwin Natural Foods) in Toronto, Allan and Susan were ready to leave The Farm. Their tempeh operation wasn’t really a business yet; it was more just testing the waters. Robert Walker had suffered a stroke and his tempeh-making equipment was up for sale. So as the Browns moved to Toronto, taking their fledgling tempeh operation with them, they bought Robert’s equipment. In June 1980, in the heart of Toronto’s Chinatown, they started Noble Bean (which see) as a tempeh manufacturing company.

Photo copy of Label (5¼ by 3½ inches) sent by Allan Brown. 1998. Jan. 21. This label was used for a short period of time in 1979. It has a bamboo border, with the word “Tempeh” written in large letters across the top half of the label. “Contents: Soybeans, water, *Rhizopus oligosporus* culture, vinegar.” Below that are the words “Farm Foods” with a thin outline around each word. Between the two words is a circular logo, which shows rows of crops (soybeans) in a field converging in the distance at the foot of three mountains. Below that is the typewritten address: “R.R. #3, Lanark, ONT K0G 1K0.” Note: The typeface used for the word “Tempeh,” the bamboo border, and the Farm Foods logo all appeared earlier (about 1978) on tempeh products made at The Farm in Summertown, Tennessee.

1192. Jaeger, Martin. 1979. The likely effects on Ontario soybean producers of the shift in the location of a soybean crushing plant from Toronto to Windsor. Toronto, Ontario, Canada: Ontario Ministry of Agriculture and Food. 17 p. June. Series: Economics Information. 30 cm. [6 ref]
• ***Summary:*** Contents: Foreword. Trends in the Ontario oilseed industry: Production trends, facility changes, institutional trends. The current situation. The change: UCO (United Co-Operatives of Ontario) facilities, Maple Leaf-Monarch facilities. The likely effects of the change on Ontario farmers: The effect on pricing and delivery patterns, pricing during the close of navigation, direct delivery, effects of the new processing location on elevators. Summary. References.

Index to tables: 1. Oilseeds production, imports and exports, Canada, crop year 1969-70 to 1977-78. 2. Soybean production and utilization, Canada, 1969-1977. 3. Area, yield, and production of soybeans, Ontario, 1967-1978. 4. Farms reporting soybeans and area in soybeans, Elgin, Essex, Kent, Lambton, and Middlesex, Statistics Canada Survey, mid-year 1969, 1977, and 1978. 5. Availability of major edible oils, by type, Canada, 1967-1977 (calendar year). 6. Supply and disposition of oilseed meals, by crop year, Canada, 1967-68 to 1977-78, crop year beginning August 1. 7. Soybean marketings in Ontario as a percentage of crop year total by month, 1953-54 to 1977-78.

In 1972, the Canadian federal government expropriated some property on the Toronto shoreline (at the northwest end of Lake Ontario) which included the Maple Leaf crushing plant. Maple Leaf began to seek a new location. In 1977 it announced that it was forming a partnership with Monarch Foods (Lever Bros. Limited) to construct an integrated crushing and refining plant in Windsor alongside the proposed United Co-operatives of Ontario (UCO) deep water terminal on the Detroit River. The UCO and Maple Leaf-Monarch facilities are scheduled to open in the summer of 1979. Maple Leaf-Monarch is owned equally by Maple Leaf Mills and Lever Bros. Ltd. Lever Brothers Ltd. was not previously in the oilseed crushing business in Canada, although it is in this business elsewhere in the world on a far larger scale than was Maple Leaf Mills in Canada.

The author thinks the opening of the Windsor crushing plant may increase slightly the average price received by Ontario farmers for soybeans. Address: Economics Branch, Ontario Ministry of Agriculture and Food, Legislative Buildings, Toronto, Ontario M7A 1B6.

1193. **Product Name:** [Tofu].
**Foreign Name:** Tofu.
**Manufacturer's Name:** La Soyarie.
**Manufacturer's Address:** 25 rue St. Etienee, Hull, QUE, J8X 1H5, Canada. Phone: 613-235-5356.
**Date of Introduction:** 1979. June.
**Ingredients:** Organically grown soya beans *(Feves de soja biologiques)*, water, magnesium chloride *(chlorure de magnesium)*.
**Wt/Vol., Packaging, Price:** 500 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** Won. 1979. The Ottawa Journal (ONT, Canada). Nov. 28. p. 35. Crosby. 1979. The Citizen (Ottawa, ONT, Canada). Dec. 4. p. 58. "Miracle tofu a busy way of life for couple."

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owners: Koichi & Francine Watanabe.

Label. 1983. 5.5 by 4.5 inches. Plastic film. Red and black on clear film. "No preservatives. To keep fresh, replace water daily." A bit of information, "that may amuse you [from Steve Rowat, March 29, 1989]. Koichi Watanabe who runs La Soyarie in Hull, Quebec, and who left Japan at age 17, and whose brother runs a tofu operation in Japan, learned to make tofu by reading *The Book of Tofu*, in English, like I did."

1194. Legocki, Roman P.; Verma, Desh Pal S. 1979. Nodule-specific plant protein (Nodulin-35) from soybean. *Science* 205(4402):190-93. July 13. [10 ref]
Address: Dep. of Biology, McGill Univ., Montreal, Canada H3A 1B1.

1195. Horan, F.E. 1979. Corporations and the world food problem. Paper presented at World Game '79, New York University, Loeb Student Center, New York City, NY. July 18. 20 p.
• ***Summary:*** Focuses on ADM, vegetable proteins, TVP, cereal-soy blends, and the Food for Peace Title II program. Figure 1 shows percentage of after-tax income spent on food: Canada 14.8, France 16.5, UK 16.6, Netherlands 16.9, USA 17.0, West Germany 21.2, Korea 46.8, Philippines 50.8.

In the period 1963-65, the percentage of total protein obtained from vegetable and from animal sources was: Developing regions: 81/19. Developed regions 46/54. World 68/32. Address: Vice President, R&D Div., Archer Daniels Midland Co., Decatur, Illinois.

1196. Leviton, Richard. 1979. Soycrafters Association of North America. Director's Report. Colrain, Massachusetts: SANA. 17 p. July 28.
• ***Summary:*** Contents: I. Summary of progress. II. Financial report. III. Proposals to the membership: 1. Establish regional coordinators & develop infrastructure; Activities of the RCs. 2. Soyfoods Data Book (SANA would publish its own Green Book, like the ASA Blue Book). 3. Soyfoods publicity program. Soycrafters questionnaire (Please complete and return to registration desk before leaving

conference). 4. Lobbying FDA/USDA for acceptance of soyfoods in school lunches. 5. Liaison and cooperation with American Soybean Association and Food Protein Council. 6. 1980 SANA Conference in conjunction with INTSOY & NRRC [at the University of Illinois, Champaign]. 7. Children's educational program with theater and video. IV. Organizational plans.

The "Summary of progress" section (p. 1) begins: "Perceiving a lull in the forward movement of the newly formed Soycrafters Association, last October I offered to assume leadership of SANA and to publish its journal, Soycraft. The appointed director, Larry Needleman, found himself swamped with work with his new tofu equipment importing company, Bean Machines, Inc., and willingly handed over the directorship, which consisted of one box of folders and stationery. In January, SANA opened a small office at the New England Soy Dairy, in Greenfield, Massachusetts and David Kilroy joined as advertising and production supervisor for Soycraft." An international mailing was done to all the 900 names on Bill Shurtleff's mailing list, with about a 10% response. The summer conference at Hampshire College was a success, attracting "225 people from all over the USA including Hawaii, Puerto Rico, three from England, one from Switzerland, and a broad mixture of academics, soycrafters, farmers, food technologists. As of July 28, we had generated 65 new members (85 as of 8/27) and 50 subscribers (87 as of 8/27).

"On June 1, SANA took new office space in downtown Greenfield, set up files, began to accumulate review copies [of books] for its library, and purchased an electric typewriter. Essentially, SANA has used its funds to organize and sponsor the Soycrafters Conference (which cost about $14,000) and publish Soycraft #1, sixty pages long."

Two tables (p. 2) compare the types/categories of SANA membership and the number of members in each category in January and in July, 1979, before and after the conference.

Two maps show: (1) The USA and Canada divided into 9 regions. (2) Location of soycraft companies (manufacturers) on an outline map of the USA.

Addenda: Report of the SANA Committee on Committees (3 p.). Overview of committees and proposed activities. Organization chart showing relationship of SANA membership, Regional representatives, executive board, director, and six committees. Address: Director, SANA, 100 Heath Rd., Colrain, Massachusetts 01340. Phone: 413-624-5591.

1197. *Soycraft (Greenfield, Massachusetts).*1979. Soymilk ice cream in Guatemala. 1(1):50-51. Summer.
• ***Summary:*** This spring Plenty commenced installation of a small scale soy dairy, which will manufacture soymilk ice cream and tofu, in the Indigenous Municipal Building in Solola, Guatemala. Plenty received a $30,000 grant from CIDA (the Canadian International Development Agency) for the project.

1198. *Vancouver Free Press (Canada).*1979. Tofu, bean curd, soy cheese. Aug. 17. *

1199. Lifestream Natural Foods Ltd. 1979. Classified ad: Warehouse and delivery personnel requested... *Toronto Star (Ontario, Canada).* Aug. 20. p. C16.
• ***Summary:*** "... good working cond. [conditions], with opportunity for advancement. Non-smoker preferred. Apply immed. [immediately] at 91 Estes Park Dr. or call 495-6836.

Note: This tiny ad is in the lower left corner of this full-page of classified ads.

1200. Jaeger, Martin. 1979. Pricing and marketing soybeans. *Ontario Ministry of Agriculture and Food, Publication* No. 79-068. AGDEX 141/840. Aug. Revised, Aug. 1979, and Aug. 1981 (AGDEX141/840, No. 81-084, 4 p.).
• ***Summary:*** Revision of Factsheet "Pricing and marketing soybeans," July 1977. Address: Economics Branch.

1201. Muendel, H.-H. 1979. Soybeans: A potential crop for southern Alberta. *Agriculture Canada Research Station, Lethbridge, Weekly Letter* No. 2381. Sept. 19. 1 p.
• ***Summary:*** "Soybean research at the Lethbridge Research Station will help meet an increasing demand for information on new crops for the irrigated areas of southern Alberta. The release last spring of the variety Maple Presto, developed at the Ottawa Research Station, represents a breakthrough in terms of early maturing adapted cultivars. The challenge for breeders is to develop higher-yielding, early maturing varieties. In 1979, about 150 acres were seeded to soybeans by 12 southern Alberta farmers, on an experimental basis." Address: New Crops, Lethbridge, ALB, Canada.

1202. *Bulletin CETIOM.*1979. 4 nouvelles variétés de soja [Four new soybean varieties]. No. 76. p. 11-14. 3rd trimester. [Fre]
• ***Summary:*** The four new varieties are: Weber (Group I, Iowa), Sloan (Group II, Iowa), Verone (Group II, UNCAC), Maple Arrow (Group 00, Ottawa, Canada). Gives information on yields and composition based on trials. Also compares: Hodgson, Amsoy 71, Kingsoy, Wells, Altona, Swift, Evans. Address: France.

1203. **Product Name:** [Tofu].
**Foreign Name:** Tofu.
**Manufacturer's Name:** Carmel Hill Tofu Shop.
**Manufacturer's Address:** P.O. Box 3, New Carlisle, QUE, G0C 1Z0, Canada.
**Date of Introduction:** 1979. September.

**New Product–Documentation:** Letter/Order for 100 copies of the pamphlet "What is Tofu" from "Carmel Hill Tofu Shop." 1979. Sept. 25. The company is located at the address shown above.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owner: Dennis Connolly.

1204. Meilke, Karl D.; Young, Larry. 1979. A quarterly North American soybean forecasting model. *Canada, Department of Agriculture, Policy, Planning and Economics Branch, Working Paper* No. 4. 107 p. Sept. (FARM Project). [86 ref]
Address: School of Agricultural Economics and Extension Education, Univ. of Guelph, Ontario.

1205. Saxelin, M.L.; Nurmiaho, E.L.; Korhola, M.P.; Sundman, V. 1979. Partial characterization of a new C3-type capsule-dissolving phage of *Streptococcus cremoris* [in viili]. *Canadian J. of Microbiology* 25(10):1182-87. Oct. [26 ref]
• ***Summary:*** Native viili is a viscous, ropy, sour milk product produced in Finland by fermenting dairy milk at room temperature after inoculation with a previous fermented batch of product. Capsule-forming strains of *Streptococcus cremoris* are the typical starters for this product. Occasionally fermentation fails and resulting in a non-ropy clot–the subject of this article. Address: Dep. of General Microbiology, Univ. of Helsinki, Finland.

1206. *Vegetarian Times.*1979. An interview with Dr. Paavo Airola. No. 33. Sept/Oct. p. 45-51. [1 ref]
• ***Summary:*** Dr. Airola who was born in Eastern Europe and educated in Scandinavia, is a citizen of Canada and resides in the USA. He advocates a vegetarian diet and distinguishes between a therapeutic diet and an optimum diet. "Many foods are better eaten raw. But some foods, such as grains and some vegetables, are actually better eaten cooked... I could not find a single group of people known for good health who eat an exclusively raw-food diet. On the contrary, the diet of the Hunzakuts is up to 70-80% cooked, and the diet of the extremely healthy Vilcabambas and Yucatan Indians is up to 90% cooked. I generally recommend a ratio of 70-80% raw to 20-30% cooked.

Concerning protein for vegetarians: "Raw proteins in my diet come mostly from seeds, nuts, vegetables, and raw milk. According to the Max Planck Institute, raw proteins are utilized twice as effectively by the body as cooked proteins. Soybeans, sunflower seeds, sesame seeds, almonds, potatoes, buckwheat, and most fruits and green vegetables contain complete proteins. As you can see, this is what Americans have been told for several decades, that only animal proteins are complete and that vegetable proteins are not complete... Soybeans are very difficult to use in human nutrition because they contain trypsin inhibitors which interfere with protein digestion. They must be cooked thoroughly to destroy these inhibitors and make them edible.

Two photos show Dr. Airola.

1207. Williamson, Doug. 1979. Maple Leaf Monarch Co. oilseed plant will have little impact, study claims. *Windsor Star (Essex County, Ontario, Canada).* Nov. 20. p. 20.
• ***Summary:*** A new government report, commissioned by the Ontario Soya-Bean Growers' Marketing Board and prepared by the economics branch of the Ontario Ministry of Agriculture and Food (OMAF), says that Ontario's newest oilseed processing plant in Windsor (near central Michigan) will not have any dramatic impact on the provincial soybean industry. Though the oilseed crushing capacity of Ontario province is now 50% greater, there will be only minor price changes for area farmers because of the plant's location and therefore little incentive for them to increase production. The most significant effect of the plant will be that western Canadian rapeseed and Ontario soybean meal will replace U.S. soybean meal in the southwestern Ontario market. Yet the 1979 crop is expected to total 25 million bushels, up 32% from the 19 million bushels last year. Ontario processor requirements are between 35 and 40 million bushels; the difference is made up by soybean imports from Michigan and Ohio. During the warm months, crushers buy soybeans by the boatload. But in winter, when Seaway navigation is closed, they must rely on stored soybeans since trucking from elevators is expensive.
Address: Star agricultural reporter.

1208. Won, Shirley. 1979. "Meat without bones" business growing: Hull couple banking on soybeans. *Ottawa Journal (Canada).* Nov. 28. p. 35.
• ***Summary:*** Francine and Koichi Watanabe first tried to start a tofu shop in Ottawa but failed. Now they own and run La Soyarie in Hull, Quebec, Canada. Contains 5 recipes. A large color photo shows Koichi as he uses a hand-turned winch to lift a pressing sack filled with okara and soymilk.
Address: Ontario, ONT.

1209. **Product Name:** Mugi Miso. Renamed Barley Miso in about 1981.
**Manufacturer's Name:** Shin-Mei-Do Miso Co.
**Manufacturer's Address:** 5 Wren Road, Denman Island, BC, Canada V0R 1T0. Phone: 604-335-0253.
**Date of Introduction:** 1979. November.
**Ingredients:** Barley koji, soybeans, salt, water.
**New Product–Documentation:** Talk with Yasuo Yoshihara. 1996. March 22. Their second miso, introduced in November 1979, was a barley miso named "Mugi Miso."

Sold only to natural- and health food stores, it was renamed "Barley Miso" in about 1981.

1210. Crosby, Louise. 1979. Miracle tofu a busy way of life for couple [Francine & Koichi Watanabe of La Soyarie in Hull]. *Ottawa Citizen (Ontario, Canada).* Dec. 4. p. 58. • ***Summary:*** The company started in June 1979. They plan to open a soy deli and make tofu cheesecake and tofu burgers on a larger scale. Address: Staff writer.

1211. Crosby, Louise. 1979. Tofu flavor is delicate, subtle–or bland! *Ottawa Citizen (Ontario, Canada).* Dec. 12. p. 5. • ***Summary:*** "Tofu fans say its flavor is delicate, subtle. Others call it bland, tasteless. Alone, its not much to get excited about, but combined with other foods and spices, or in a sauce, it can be delicious." Summarizes many ways of using tofu.

"Good tofu cookbooks are also available and many of the unfamiliar ingredients are available in Oriental food stores.

Included in the list are *The Tofu Cookbook,* by Bauer and Anderson (Rodale Press), *Tofu Goes West,* by Gary Landgrebe (Fresh Press), *The Book of Tofu,* by William Shurtleff and Akiko Aoyagi (Autumn Press), and *The Heartsong Tofu Cookbook,* by Toni and Bob Heartsong (Banyan Books). Address: Staff writer.

1212. *Alive–Canadian Journal of Health & Nutrition.*1979. Mighty bean: Can something so small really be this good for you? No. 18. *

1213. Barbeau, André; Growdon, J.H.; Wurtman, R.J. 1979. Choline and lecithin in brain disorders. New York, NY: Raven Press. Series: Nutrition and the Brain. Vol. 5. xviii + 456 p. Index. 24 cm. Series: Nutrition and the Brain. Vol. 5. • ***Summary:*** Contents: I. Acetylcholine synthesis and biochemistry. Precursor control of transmitter synthesis, by R.J. Wurtman. An overview of choline and acetylcholine metabolism in relation to the therapeutic uses of choline, by D.J. Jenden. Transport of choline and choline analogues through the blood-brain barrier, by W.M. Pardridge, E.M. Cornford, L.D. Braun, and W.H. Oldendorf. Sources of choline for acetylcholine synthesis in the brain, by G.B. Ansell and S. Spanner. Brain lecithin biosynthesis: Evidence that bovine brain can make choline molecules, by S. Zeisel, J.K. Blusztajn, and R.J. Wurtman. Choline availability and the synthesis of acetylcholine, by D.R. Haubrich, N.H. Gerber, and A.B. Pflueger.

II. Measurement, sources, and metabolism of choline and lecithin. Sources of choline and lecithin in the diet, by J.J. Wurtman. Metabolic fate of dietary lecithin, by U.M.T. Houtsmueller. Pharmacokinetics of orally ingested phosphatidylcholine, by J.M. Fox, H. Betzing, and D. Lekim. Hypothesis for interactions between acetylocholine and prostaglandin biosynthesis: An introduction, by A.J. Vergroesen. Measurement of lecithin and choline, by I. Hanin. Sodium dependent high affinity neuronal choline uptake, by R.C. Speth and H.I. Yamamura.

III. Anatomy physiology, and pharmacology of cholinergic neurons. Overview: Cholinergic drugs and behavior–What effects may be expected from a "cholinergic diet"?, by A.G. Karczmar. Central cholinergic pathways, by P.L. McGeer and E.G. McGeer. Are acetylcholine levels related to acetylcholine release?, by F.C. MacIntosh. Postsynaptic effects of choline administration, by I.H. Ulus, Y. Arslan, R. Tanrisever, and B.K. Kiran. A possible central muscarinic receptor agonist role for choline in increasing rat striatal acetylcholine content, by H. Ladinsky, S. Consolo, and P. Pugnetti. Relationship between choline and acetylcholine release in the autonomic nervous system, by K. Loeffelholz, R. Lindmar, and W. Weide. Effect of choline on the release of acetylcholine from the neuromuscular junction, by G.G. Bierkamper and A.M. Goldberg.

IV. Choline and lecithin in movement disorders. Ways to predict clinical responses to lecithin administration, by J.H. Growdon. Lecithin in movement disorders, by A. Barbeau. Cholinergic mechanisms in movement disorders: Results of physostigmine and scopolamine administration, by C.M. Tanner, C.G. Goetz, and H.L. Klawans. Lecithin for the treatment of tardive dyskinesia, by A.J. Gelenberg, J.D. Wojcik, and J.H. Growdon. Clinical and preclinical experience with choline chloride in Huntington's disease and tardive dyskinesia: Unanswered questions, by K.L. Davis, P.A. Berger, and L.E. Hollister. Clinical experience with a cholinergic agonist in hyperkinetic movement disorders, by J.G. Nutt, C.A. Tamminga, T. Eisler, and T.N. Chase. Use of choline in five patients with Huntington's disease, by S-A. Eckernäs and S-M. Aquilonius. Preliminary trials of phosphorylcholine in Huntington's chorea and senile dementia, by P. Antuono, R. Taiuti, L. Amaducci, and G. Pepeu. Effects of choline in patients with levodopa-induced dyskinesia, by P.S. Papavasiliou and V. Rosal.

V. Choline and lecithin in memory and mood disorders. Physiology of acetylcholine in learning and memory, by J.A. Deutsch. Effects of cholinergic agents on human learning and memory, by D.A. Drachman and B.J. Sahakian. Choline chloride and arecoline: Effects on memory and sleep in man, by N. Sitaram, H. Weingartner, and J.C. Gillin. Effects of choline and lecithin on SCF choline levels and on cognitive function in patients with presenile dementia of the Alzheimer type, by J.E. Christie, I.M. Blackburn, A.I.M. Glen, S. Zeisel, A. Shering, and C.M. Yates. Alzheimer's disease: Clinical effect of lecithin treatment, by P. Etienne, S. Gauthier, D. Dastoor, B. Collier, and J. Ratner. Use of cholinergic drugs in mental illness, by C.M. Harris, J.M. Davis, and D.S. Janowsky. Cholinergic influences on affect, by C.A. Tamminga and J.G. Nutt.

Lithium administration potentiates the effect of exogenous choline on brain acetylcholine levels, by W.R. Millington, A.L. McCall, and R.J. Wurtman. Cholinomimetics in mania, schizophrenia, and memory disorders, by P.A. Berger, K.L. Davis, and L.E. Hollister. VI. Appendix. Commercially available "lecithin": Proposed guidelines for nomenclature and methodology, by I. Hanin.

Other volumes in this series are: 1. Determinants of the availability of nutrients in the brain (1977). 2. Control of feeding behavior and biology of the brain in protein-calorie malnutrition (1977). 3. Disorders of eating: Nutrients in treatment of brain diseases (1979). 4. Toxic effects of food constituents on the brain (1979). Address: 1. Institut de Recherches Cliniques de Montréal, Montreal, Quebec, Canada; 2. Tufts-New England Medical Center Hospital, Boston, Massachusetts; 3. Massachusetts Institute of Technology, Cambridge, Massachusetts.

1214. Barbeau, André. 1979. Lecithin in movement disorders. *Nutrition and the Brain* 5:263-71. (A. Barbeau, J.H. Growdon, and R.J. Wurtman, eds. Vol. 5. Choline and Lecithin in Brain Disorders. New York: Raven Press). [55 ref]

• ***Summary:*** Contents: Introduction. Subjects and methods. Results. Discussion. Conclusion. Acknowledgments. Address: Dep. of Neurobiology, Clinical Research Inst. of Montreal, Montreal, Quebec, Canada H2W 1R7.

1215. Barer-Stein, Thelma. 1979. You eat what you are: A study of ethnic food traditions. Canada: McClelland & Stewart, Ltd. xii + 13-624 p. Index. 23 cm. [550+* ref]

• ***Summary:*** This is largely a compilation of information from many other books and articles. On the cover is a color painting of The Gardener (or Vertumnus), from his series, The Four Seasons, c. 1590, by Giuseppe Arcimboldo (or Arcimboldi) of Milano.

In Chapter 12, on China, the section titled "Meats and alternates" (p. 110-13) notes that the soybean is called the "Chinese Cow" [sic, "Cow of China"] because of its versatility. Soybeans are used as whole dry beans and as sprouts, or they can be made into a firm white curd called "Chinese cheese" [sic], which can be used in many different ways. Soybean milk may be used in much the same way that westerners use cow's milk. They are fermented to make the favourite condiment, soy sauce, or "fermented bean curd that is packed in jars and sold as red bean sauce or white bean sauce,..." Cantonese names from soy products are: Mien chiang: A syrup-like sweet bean paste. Dow-foo (tofu). Foo yu (fermented tofu). Tiem jook (dried yuba, broken into pieces). Wow doo [Wu dou]. Black soybeans. Dow see [doushi, soy nuggets]: Salted, fermented black soybeans.

In Chapter 30, on Japan, the section titled "Meats and alternates" (p. 336-37) notes that products made from soybeans include: (1) "Shoyu, a sweetish soy sauce made from wheat and barley [sic], soybeans, salt, and water." (2) Miso, or "fermented soybean paste," used mostly for flavouring soups [miso soup]. (3) Tofu, or soybean curd, is a staple in Japanese cookery. "Its smooth, custard-like texture and bland flavour make it an ideal ingredient. It is extremely versatile and readily absorbs other flavours. Many "restaurants in Japan take great pride in their tofu dishes."

In Chapter 31, on Korea, the section titled "Fruits and vegetables" (p. 350-51) discusses soybeans and their products at length. Soy sauce is used to season *kim* (nori) and other edible seaweeds. Soy sauce is an ingredient in "hot pepper mash" *[kochu jang]*. Soybeans are used to make "soybean mash" *[doen jang]*. Dry soybeans are roasted in an iron pot, then ground, and the roasted soy flour is used as a garnish over rice cakes or plain cooked rice; children enjoy eating the coarser roasted bits that are sifted out of roasted flour or meal. Soybeans sprouts are eaten lightly cooked as a vegetable. Soybeans are also made into tofu *(tu bu);* a brief description of the process is given, in which the drained curds are left in their hemp bag to form a firm cake, which may be cut, dipped into soy sauce, or fried in sesame oil. "Oil can also be made from the soybeans, but it is not commonly used or prepared."

Although commercial soy sauce, made in factories, is now widely available, many Korean households still prepare their own soy sauce each fall. Boiled soybeans are pounded, molded into a cone shape, and set to dry until hard. They are then wrapped with rice straw, hung from eves, rafters or ceilings, and allowed to ferment for several weeks [until they become *meju]*. During the winter, these fermented cones may be stored in huge rice-straw bags kept in a cool place.

In the spring, break the cone into small pieces and place in a large earthenware jar, nearly filled with water. Add salt, spices, red peppers, and a few charcoal lumps. Leave this in the sun for a few days [sic, 30-60 days] until the molded soybean chunks float to the top and the resulting liquid turns black. Ladle out and filter the black liquid, then boil it to make soy sauce. The solids remaining in the jar are used as soybean mash [after the charcoal is removed].

A portrait photo of the author, with a brief biography, appear on the rear cover and in the Introduction. Address: Ph.D. student, Ontario Inst. for Studies in Education, Toronto, Ontario, Canada.

1216. Buzzell, R.I.; Voldeng, H.D.; Bailey, L.D. 1979. Growing soybeans. Revised ed. *Agriculture Canada, Publication* No. 1487. 19 p. First published in 1972.

• ***Summary:*** Contents: Introduction. Selecting a variety. Soybeans in a rotation. Soils and fertilizers. Preparing a seedbed: Fall tillage, spring tillage. Planting the crop: Seed treatment, inoculation, time, rate, and depth of seeding, row

width, equipment. Controlling weeds: Cultural methods, chemical methods. Diseases: Seed decay, root and stem rots, leaf diseases, stem diseases, seed diseases. Insect pests. Harvesting. Storage. Producing seed soybeans. Marketing. Soybean research by Agriculture Canada. Acknowledgments. Address: 1. Research Station, Harrow, Ontario; 2. Research Station, Ottawa, Ontario; 3. Research Station, Brandon, Manitoba. All: Canada.

1217. Canadian Feed Industry Association. 1979. Sharing the past, shaping the future: 50 years of the Canadian feed industry. Ottawa, Ontario, Canada: CFIA. 186 p.
• ***Summary:*** Contents: Introduction. Our history. The way it was. The formation years 1929-1939. The Years of Challenge 1940-1945. Growth and Expansion 1946-1961. The Years of Influence 1962-1979. Conventions. Agriculture Du Québec. Medication and Animal Health. History of Mill Equipment. Genetics and Nutrition. Changes at the Farm Level. Company Histories. Looking Ahead Shaping the Future. Secretaries to C.F.M.A. Industry Members 1979. Statistics. 1979 Board of Directors. C.F.I.A. Administration. Advertisers Index. In the "Company Histories" section, that of Maple Leaf Mills Ltd. is given on pages 141-42; it includes Maple Leaf Milling and Toronto Elevators.

"Maple Leaf Mills Ltd.: The inspiration and hard work of a handful of men in the late 1930's blossomed into Maple Leaf Mills of the 1970's, a diversified enterprise whose history is part of Canada's coming of age in feed and livestock production and agricultural research. Today's computer-speed marketing aids were not available when Toronto Elevators Ltd., a grain company, and Maple Leaf Milling Co., a flour miller, began selling feed in the late 1920's. By 1929, both were members of the original Canadian Feed Manufacturers Association and competing against one another in the feed business. More than 30 years later, the two pioneering companies merged to form Maple Leaf Mills Ltd. and retained the 'Master Feeds' brand name of Toronto Elevators.

"There had always been strong bonds between the two firms. Fred Presant, who joined Toronto Elevators in 1929 to establish a feed manufacturing operation at the request of company founder Gordon Leitch, was an old friend of Ted McRostie who engineered the creation of Maple Leaf's feed production set-up.

"From its flour milling operation at Pt. Colborne, Ontario, Maple Leaf had the by-products at hand to produce prepared feeds for livestock as well as a scratch grain for poultry made of a whole grain mixture. Ted McRostie, manager of the feed department, worked closely with Prof. Graham of O.A.C. and in the early 1930's Maple Leaf was selling Monarch Poultry and Livestock Fees as well as a line of Cafeteria Open Formula Feed. Bags of O.A.C. Cafeteria laying mash–illustrated by hens walking up to a cafeteria–were produced on the philosophy that birds had selected from a range of ingredients. Maple Leaf Milling was the only company that sold feeds on the open formula basis: 300 lbs. crushed oats, 150 lbs. bran, 85 lbs. soybean meal, 100 lbs. middlings. The whole formula was right on the jute bags. Maple Leaf's second feed mill was constructed in Montréal just after the Second World War.

"Of the feed manufacturing developments which modernized the industry in the 1950's, there were two. Prior to bulk handling, 'feed was put in 50 lb. paper bags instead of 100 lb. jute bags, the reason being that there were three flights of stairs to climb in made-over buildings.' The second revolution was the 'pelleting of feeds, making crumbles. That had most to do with the mechanization of broilers and caged layers since mash in conveyor belts is difficult to control.'"

"As a grain company, Toronto Elevators did not have animal or cereal by-products for feed manufacturing as did meatpacking or flour milling companies. Toronto Elevators used what was called a whole-grain base and this is what they came to in later years. This was the start of high-energy complete feeds, the result of experimentation, observation and results obtained by Fred Presant and others in the company. 'I had very definite ideas as to the quality of the product that we were going to put out under the name of Master Feeds which I had originated.'

"Presant's purposefulness grew out of his earlier work in the poultry business, managing a 2,000 laying hen farm at Bracebridge, Ontario in 1917, one of the largest farms in Ontario at the time. When Master Feeds was launched as a department of Toronto Elevators, 'nobody knew who we were or our product and the salesmen would have to go round and visit individual poultrymen, usually with a flock of 200 laying hens,' notes Presant. But as the farm business began to grow. Presant's salesmen approached farm suppliers to be dealers. In 1932 Fred Presant served as President of C.F.M.A."

"'Then your reputation grows.' A concrete symbol of the sales work was the construction of a new feed plant in Toronto in 1938."

"In 1962, Toronto Elevators merged with Maple Leaf Milling and the feed operations were combined as Master Feeds." Address: Box 2080, Station "D," Ottawa, Ontario K1P 5W3, Canada.

1218. Carroll, K.K.; Huff, M.W.; Roberts, D.C.K. 1979. Vegetable protein and lipid metabolism. In: H.L. Wilcke, D.T. Hopkins, and D.H. Waggle, eds. 1979. Soy Protein and Human Nutrition. New York: Academic Press. xiv + 406 p. See p. 261-80. [16 ref]
• ***Summary:*** Secretion of neutral and acidic steroids in rabbits was increased when the low-fat, cholesterol-free diet contained isolated soy protein in place of casein. Address: Univ. of Western Ontario, London, ONT, Canada N6A 5C1.

1219. Etienne, P.; Gauthier, S.; Dastoor, D.; Collier, B.; Ratner, J. 1979. Alzheimer's disease: Clinical effect of lecithin treatment. *Nutrition and the Brain* 5:389-96. (A. Barbeau, J.H. Growdon, and R.J. Wurtman, eds. Vol. 5. Choline and Lecithin in Brain Disorders. New York: Raven Press). [24 ref]
• ***Summary:*** Contents: Introduction. Methods. Results. Discussion. Acknowledgments. Summary. Alzheimer's disease appears to be associated with a selective, partial degeneration of central cholinergic neurones. There are indications that the activity of the enzyme choline acetyltransferase (CAT) is reduced. Address: 1. Allan Memorial Inst., Montreal H4K 1B3; 2. Montreal Neurological Inst., Montreal H3A 2B4; 3. Douglas Hospital Center, Verdun H4H 1R3; 4. Dep. of Pharmacology and Therapeutics, McGill Univ., Montreal H3G 1Y6; 5. Maimonides Hospital and Home for the Aged, Montreal H4W 1W3. All: Canada.

1220. L'Aurore. 1979. La cuisine au tofu: Un art Japonais [Tofu cuisine: A Japanese art]. Quebec, Canada: L'Aurore. 192 p. Illust. No index. 14 x 22 cm. [Fre]
• ***Summary:*** Contents: I. Introduction: Table of derivatives of soybeans. Some numbers [statistics]. II. Tofu: Utensils, coagulants, method of preparation of tofu, method of preparation of kinugoshi tofu. Other preparations: Soymilk. Soymilk yoghurt [yogurt]. III. Getting started: Fundamental ingredients, tools of the art, techniques for preparing foods. Fundamental recipes: Bouillons, sauces to accompany basic soy sauce, preparations to accompany basic miso, basic sauces, rice, noodles, sesame salt, grilled soybeans, kofu [wheat gluten]. Recipes using gô, okara, tofu, soymilk, kinugoshi tofu, yuba. Glossary. Useful addresses. Bibliography.

Note: This book is largely based on and pirated from *The Book of Tofu* by Shurtleff and Aoyagi (1975). Address: Quebec, Canada.

1221. McLaughlan, J.M. 1979. Critique of methods for evaluation of protein quality. In: H.L. Wilcke, D.T. Hopkins, and D.H. Waggle, eds. 1979. Soy Protein and Human Nutrition. New York: Academic Press. xiv + 406 p. See p. 281-97. [28 ref]
• ***Summary:*** Like other animals, humans "require many nutrients including essential fatty acids, vitamins, minerals, and fatty acids. Human requirements for the nine essential amino acids have been estimated recently (World Health Organization, 1973) and are similar to those proposed for other animals.

Long before the isolation and characterization of individual amino acids, it was recognized that, in general, proteins from some sources (such as plants) were inferior to those from other sources (animals). "This knowledge led to the concept of protein quality... Many people during the past 75 years have been engaged in the sometimes frustrating problem of evaluating protein quality.

"If research had followed a different course we might have set requirements for each essential amino acid (the way we do for vitamins) and the idea of 'protein quality' might never have arisen. In theory, we don't need a method for 'protein quality'–all we need are satisfactory methods for measuring (available) amino acids and an accurate knowledge of human requirements for each essential amino acid. Block and Mitchell (1946) pioneered this approach to evaluating food proteins, calling the method chemical score."

"Thomas (1909) provided us with the first true method for assessing differences in protein quality–the biological value (BV) method. Mitchell (1924) standardized the procedure and applies it to many foods." Equation: BV = (retained nitrogen divided by absorbed nitrogen) x 100. A more detailed and meaningful equation is then given. "Biological value is a nitrogen balance technique..." The method is laborious and subject to several possible sources of error.

Osborne, Mendel, and Ferry (1919) "increased the dependency of the rat growth method by expressing the weight gained and protein consumed as a ratio–hence the name "protein efficiency ratio" or PER." Equation: PER = Weight gained divided protein consumed. "PER values for a protein increase as the protein content of the diet is raised up to a maximum value (usually about 9-10% protein)... Although PER is the official method of the United States and Canada, it has serious shortcomings which are generally well-known and will be discussed later.

"Miller and Bender (1953) proposed net protein utilization (NPU) which assessed the nitrogen (N) utilization of the test protein. The carcass nitrogen of the test group and a group fed a non-protein diet are measured." Equation: NPU = (Body N of test group minus body N of group fed a non-protein diet) divided by the N consumed by the test group. "Determination of body nitrogen is a messy business... NPU is widely used, particularly in Europe.

"Bender and Doell (1957) published a simpler version of NPU called net protein ratio or NPR. Body weight rather than body nitrogen was measured." Equation: NPR = (Body weight of test group minus body weight of group fed a non-protein diet) divided by the protein consumed by the test group.

"Hegsted and Chang (1965) "proposed the slope ratio (SR) assay which is a multi-dose procedure which includes a non-protein diet and three or more dietary levels of protein. Only levels falling in the linear portion of the slope are used in computing the slope. Lactalbumin [a protein obtained from milk whey that is similar to the albumin in human blood serum] was chosen as a reference protein and

the slope of the test protein was expressed as a percent of the slope for lactalbumin."

Relative protein value (RPV) "is the same as the slope ratio (SR) except that the data for the non-protein is omitted when calculating the slope." SR is generally considered more suitable that RPV.

"All of the methods discussed measure, either directly or indirectly the efficiency of the utilization of the food protein for deposition of body nitrogen." The search is on for a method to replace PER. It is important to remember that "protein quality depends principally on the content of the limiting amino acid and the relative requirements of that amino acid for maintenance and growth."

An interesting discussion and debate follows. Dr. Peter L. Pellett of MIT [Massachusetts] concludes: "Data for lysine, total sulfur amino acids and perhaps threonine are all that are necessary for the vast majority of food proteins and, when expressed as percentages of food requirements, have the tremendous of being *additive* for mixed complementary dietaries, an attribute that is impossible for bioassays, no matter how accurate, to emulate." In short, in the future, we should focus on amino acid requirements rather than protein quality. Address: Dep. of National Health and Welfare, Tunney's Pasture, Ottawa 3, ONT, Canada.

1222. Pollard, Douglas C. 1979. Sprouts for dieters. Cobalt, ONT, Canada: Highway Book Shop. vi + 89 p. Illust. No index. 18 x 11 cm.
• ***Summary:*** Contents: Preface. Note. Sprouts: A valuable food for dieters. Seeds to sprout (discusses 37 varieties, including soybeans [p. 30]). Sprouting containers. How to sprout. Suggested ways to use sprouts. Soy-related recipes: Soy vegetable soup (p. 58). Creole soy sprouts (p. 71). Soybeans (74). Soy sprout butter (81). Soy sprout milk (84). Address: Cobalt, ONT, P0J 1C0, Canada.

1223. Quashie-Sam, Semion James. 1979. Ecological studies on *Rhizobium japonicum* and inoculation of soybeans in the soybean growing areas of Ontario. PhD thesis, University of Guelph, Canada. Page 5181 in volume 39/11-B of Dissertation Abstracts International. * Address: Univ. of Guelph, Canada.

1224. Smith, Elizabeth Bernice. 1979. Vegetarian meal-planing guide: A lacto-ovo-vegetarian diet. Winnipeg, Manitoba, Canada: Hyperion Press Ltd. 104 p. Illust. (some color). 21 x 22 cm. [57+ ref]
• ***Summary:*** At head of title: "Dr. Elizabeth Smith's New World of Eating." Table 5e (p. 25) lists calories for meat alternates group. Soybean sprouts, miso, soybean curd (tofu), soybean milk, and TVP are moderate calorie, while soybeans and soy grits are high calorie.

Page 47 notes: "Generally speaking, legumes are moderately deficient in methionine. Soybeans are an exception, as are their by-products, tempeh (fermented), tofu (the curd formed for soya), and soybean milk. All these are roughly equivalent in quality to cow's milk.

Page 49 notes that when breast feeding is not possible, soyamilk may be formulated as a very satisfactory substitute; vitamin B-12 must supplement it in pill form. "An infant who cannot tolerate cow's milk because of allergy and cannot be breast fed may accept a soybean formula until 3 to 4 months of age. At weaning, according to Fomon, the child should continue to receive by cup either soybean formula or soybean milk fortified with vitamin B-12.

Pages 54-56 describe in detail how to sprout soybeans at home, and how to prepare homemade soymilk and tofu (soybean curd). It is advised that fermented soybean products such as miso and tempeh not be produced at home "as the control of the fermentation process by specific micro-organisms is too difficult to achieve without specialized training and equipment."

Soy-related recipes include: American soybean loaf (with soaked, ground soybeans, p. 76). Soybeans printanier (with cooked soybeans). Soya sesame loaf. Soya cheese balls (with cooked, seasoned soybeans). Soybean casserole (p. 77). Sprouted soybean Creole. Sprouted soybeans au gratin. Bean sprout chop suey (with tofu, p. 77). Skillet soya sprouts and beans (p. 78). Soybean stroganov (p. 78). Address: Winnipeg, Manitoba, Canada.

1225. Voldeng, Harvey D. 1979. Soybeans in Canada–Past, present and future. Based on an article [sic, manuscript] by Dr. H. Voldeng. In: Fats and Oils in Canada: Annual Review. Ottawa, Ontario, Canada: Grain Marketing Office, Dept. of Industry, Trade and Commerce, Agriculture Canada. [vi] + 95 p. See p. 1-10. Chapt. 1. [7 ref]
• ***Summary:*** Contents: Introduction. Introduction of soybeans to Canada. Importance of the soybean [worldwide]. Utilization. Food uses of soybeans: Oriental foods–Soy milk, tofu, sufu, miso, soy sauce, tempeh, Hamanatto, natto. Western ingredients–Full fat flour, defatted flour, soy protein concentrates (70% protein), soy protein isolate (more than 90% protein), textured soybean protein. Soybeans in Ontario. Development of short season varieties. Soybeans in Quebec and the Maritimes. Soybeans in the Prairies (southern Manitoba and Alberta).

A table shows soybean acreage in Ontario's leading counties in 1978. Kent 205,000. Essex 192,000. Lambton 170,000. Elgin 63,000. Middlesex 40,000. Other 7,000. Total (Ontario) 705,000 acres.

Soybeans grown in Ontario can be crushed at three plants: (1) Victory Soya Mills (owned by Procter and Gamble) in Toronto. (2) Canadian Vegetable Oil Processing Limited (owned by Canada Packers) in Hamilton. (3) The recently completed Maple Leaf Monarch plant (affiliated

with Unilever Corporation) in Windsor. Total crushing capacity in Ontario is about 35 million bushels per year.

The CSP Foods Plant in Altona, Manitoba, has in some years crushed limited amounts of soybeans imported from the U.S.

"Development of short season varieties: The justification for the effort to develop a large acreage outside of southwestern Ontario as been the magnitude of imports of soybeans, meal and oil. This has been and continues to be sizeable. The situation (in metric tons = tonnes) is outlined below for the 1977/78 crop year: (1) Whole soybeans: Production 527,361. Imports 262,835. exports 64,173. Domestic crushing 728,400.

(2) Soybean oil: Imports 28,100. Exports 1,400. Domestic production 125,600.

(3) Soybean meal: Imports 376,300. Exports 45,600. Domestic production 575,400. Source: *Fats and Oils in Canada, Annual Review,* 1978.

Letter (e-mail) from Dr. H. Voldeng of Agriculture and Agri-Foods Canada. 2010. Feb. 16. The original "article" was not an article but a manuscript that was sent to the publishers of this volume; they reduced the length slightly. It was never published separately, no longer exists, and cannot be cited separately. Address: Agriculture Canada, Ottawa, Ontario.

1226. Young, L. 1979. A quarterly econometric model of the North American soybean market. MSc thesis, University of Guelph, Ontario, Canada. *
Address: Univ. of Guelph, Ontario, Canada.

1227. Landsberg, Michele. 1980. Family: 25 pounds later, I'm hanging in. *Toronto Star (Ontario, Canada).* Jan. 14. p. D1.
• ***Summary:*** She spent 26 days at the Nathan Pritikin Longevity Center in Santa Monica, California, where she "practised the austere virtues of exercise, a no-fat [sic, low-fat] diet of natural whole grains and vegetables, and a nicotine-free life." It wasn't easy for an "unsaintly" lady, but she lost 25 pounds.

She even learned about a new wonder food, as crazily versatile as the famous "shmoo" of L'il Abner fame. It's tofu! As exulted by Jim White, Star food writer, who transforms it into everything from tofu cheesecake to stir-fried tofu to tofu-garlic dip. She will give recipes next Wednesday.

"Tofu is a bland, creamy soya bean curd which is almost solid protein; 3½ ounces of the cute little wobbly stuff has only 72 calories compared to 347 calories for the same amount of rump roast.

"It's goofy serendipities like tofu that filled up the blank space left by cigarettes and steak."

1228. *Toronto Star (Ontario, Canada).*1980. Tofu takes the cake as dieter's delight. Jan. 16. p. D2.
• ***Summary:*** A half page of tofu recipes tested by the Star Test Kitchen. The source of each is given. For example: Tofu orange almond dessert, from The Book of Tofu by Shurtleff and Aoyagi. Tofu smoothie, from The Tofu Cookbook by Kathy Bauer and Juel Andersen. Tofu cheesecake, from the Soja Restaurant, which will soon open on Kensington Ave.

An illustration shows a slice of Tofu cheesecake.

1229. White, Jim. 1980. Close encounter of the tofu kind: A white custardy thing zooms out of the Orient onto your lunch counter. *Toronto Star (Ontario, Canada).* Jan. 18. Family section.
• ***Summary:*** This full-page feature states: "Brace yourself, Toronto, for the experience, because there's every indication tofu's going to do more than hover on the horizon like a fleet of sci-fi spacecraft." Victor Food Products in Scarborough [a suburb of Ontario] says that sales of tofu have nearly tripled in one year, from 720 lb/day to more than 1,900 lb/day. Shoppers can now buy tofu in selected Dominion, Lowlaws, Miracle Mart, and A&P outlets. "When the big boys take a bite of the action, you know something is cooking."

The article includes a listing of tofu makers and retailers in the Toronto area. Makers: (1) Pyung Hwa Co., 2139 Dundas St. W. Jhasun Koo. Phone: 534-0237. Korean-style tofu. Firm, 10-oz. cakes cost $0.55. (2) Wah Chong Co., 88 Ossington. Phone: 532-0841. Chinese style. $1.20/dozen. (3) Yet Sing Co., 11 Baldwin St. Phone: 863-0818. Custardy tofu. $0.70/dozen. (4) Victor Food Products. A photo shows Stephen Yu, standing with has packaged tofu and soymilk products.

Paul Smith, owner of Baldwin St. Natural Foods, runs a small night class once a month on making tofu. Branson Hospital (Seventh-day Adventist) has been serving vegetarian meals to patients for 22 years. Much of the protein comes from soyamilk, soya curd, and other soya products. Interest in tofu has been spread by the publication of *The Book of Tofu,* by William Shurtleff and Akiko Aoyagi. Address: Star Food Writer.

1230. Beard, James. 1980. A vegetarian's lunch need not be dull. *Toronto Star (Ontario, Canada).* Jan. 23. p. D6.
• ***Summary:*** "Ten years ago, few people would have dreamed of going to a vegetarian restaurant for lunch–and I count myself among them." Beard finds the food in most vegetarian restaurants too limited, bland and boring.

But then he discovered Greens in San Francisco (near the Presidio and the Golden Gate Bridge). He tried the brochette [two skewers] of vegetables and marinated tofu and, to his surprise, he liked it. The veggies were mushrooms, zucchini, carrots, and onions.

Illustrations show: (1) Two brochettes with one cube of tofu on each. (2) James Beard.

1231. **Product Name:** Beef & Soya Burgers.
**Manufacturer's Name:** Cardinal Meat Specialists Ltd.
**Manufacturer's Address:** 2396 Stanfield Rd., Mississauga, Ontario, Canada.
**Date of Introduction:** 1980. January.
**Ingredients:** Incl. ground beef and textured soy protein.
**Wt/Vol., Packaging, Price:** 14 burgers in a 1 kg reclosable box.
**How Stored:** Frozen.
**New Product–Documentation:** Food in Canada. 1980. Jan. p. 31. "Cardinal introduces 'extended' burgers." Cardinal has introduced chopped, formed, and frozen burgers. Sold 14 in a 1 kg box, they contain 8% soya protein extender and are priced lower and shrink less during cooking than regular beef patties. A photo shows the box.

1232. *Food in Canada.*1980. Cardinal introduces "extended" burgers. 40(1):31. Jan.
• ***Summary:*** Cardinal Meat Specialists Ltd. of 2396 Stanfield Rd., Mississauga, Ontario, Canada, has introduced Beef and Soya Burgers. The chopped, formed, and frozen burgers, sold 14 in a 1 kg box, contain 8% soya protein extender. They are priced lower and shrink less during cooking than regular beef patties. A photo shows the box.

1233. Meilke, Karl D.; Young, Larry; Miller, Dorothy. 1980. A quarterly forecasting model of the Canadian soybean sector. *Agriculture Canada, Policy, Planning and Economics Branch, Working Paper* No. 9. 73 p. Jan. [24 ref]
• ***Summary:*** "Soybean Domestic Demand and Trade (p. 3-5): Until very recently Canada's three soybean crushers were located in the Toronto-Hamilton area and had a combined rated crushing capacity of approximately 635,000 mt. [metric tons = tonnes] per year. Actual soybean crushings varied from 547,000 mt. in 1968/69 to a high of 743,000 mt. in 1978/79 and averaged 657,000 mt. over the eleven year period (Table 1).

"Early in 1980 Maple Leaf Mills closed its small Toronto crushing plant and opened a new integrated crushing plant, jointly owned with Lever Brothers, in Windsor, Ontario. The opening of this new plant has implications for the pricing of Ontario soybeans and for Canadian trade in soybeans, soyoil and soymeal... Canada's soybean crushing capacity will increase by almost 50 percent, to 890,000 mt. per year, when the new plant is in full operation."

"Two recent events may have an impact on the pricing of Ontario soybeans. The first is the opening of the Windsor crushing plant, which Jaeger (1979) feels may increase slightly the average price received by Ontario farmers for soybeans. The second is the removal of the United States tariff of 60¢/bushel, on soybeans, during the recent GATT negotiations. The possibility of shipping Southwestern Ontario soybeans into deficit producing areas in the U.S. adds a new element to marketing and possibly pricing Ontario soybeans."

With the "increased output of soyoil from the Windsor plant, Canada's soyoil price may not be above the U.S. price by the full amount of the tariff. Since there is no publicly reported soyoil price it will be hard to know if this has happened" (p. 48).

Note: This is the 2nd earliest English-language document seen (Sept. 2006) that uses the term "soyoil" to refer to soybean oil. Address: School of Agricultural Economics and Extension Education, Univ. of Guelph, ONT, Canada.

1234. Loblaws. 1980. 1/3 off sale (Ad). *Toronto Star (Ontario, Canada).* Feb. 20. p. A13.
• ***Summary:*** Near the right center of this full-page grocery store ad: "ToFu (soya bean curd) product of Ontario, package 79¢" Address: Toronto.

1235. Hope, Jane; Bright-See, E. 1980. Tofu: Nutritionally its the ideal food. Nutrition matters. *Toronto Star (Ontario, Canada).* Feb. 27. p. C3.
• ***Summary:*** Discusses the many virtues of tofu.

1236. Leviton, Richard. 1980. Soycrafters Conference: The birthing of a new industry. Director's report: Missed all the meals. *Soycraft (Colrain, Massachusetts)* 1(2):16-23. Winter.
• ***Summary:*** A report on the Second Soycrafters Conference, held 26-29 July 1979 at Hampshire College, Amherst, Massachusetts. Over 50 workshops and lectures were presented on all phases of the soyfoods industry. "Miraculously, the $19,000 conference broke even financially, and attracted significant national press in the following three months."

The section titled "The view from the guests" (p. 20-23) contains brief statements (all positive) about the conference from the following attendees: Luke Lukoskie (Island Spring), Rebecca Uchida (Mu Tofu Shop), Michelle Ajamian (Amesville, Ohio), Shag Kiefer (Redbud Creek Tofu), Will Truslow (Jamaica Plain, Massachusetts), Dr. Joseph Rakosky (Rakosky Services, Melrose, Illinois), Marvel Huffman (Lecanto Tofu), Francine Watanabe (La Soyarie, Hull, Quebec, Canada), Dr. Charles Howes (Loma Linda Foods, Mt. Vernon, Ohio), Timothy Metzger (Dannon Milk Products, Long Island City, New York), Lee Cunningham (Wonder Life Corp., Des Moines, Iowa), Joseph Jaffer (Waymart, Pennsylvania), Chico Wagner (Yaupon Soyfoods), Dr. Malcolm Bourne, Frank Pilotte (Golden Key Farm, Grant Park, Illinois), David Patten

(Brightsong Tofu, {Redwood Valley}, California), Patti Smith (Erewhon, Cambridge, Massachusetts), Larry Needleman (Bean Machines, Bodega, California), Peter Driscoll, Goodhart Foods (Petosky, Michigan), Bill Shurtleff (New-Age Foods Study Center), George Strayer (Agricultural Exports, Hudson, Iowa), David Blumberg (San Francisco, California), Dr. Keith Steinkraus (Cornell Univ., Ithaca, New York), Bob Bergwall (Nasoya Foods, Leominster, Massachusetts).

Photos show: (1) Overview of the conference registration hall incl. Richard Leviton talking with George Strayer. (2) Kathy Leviton adding finishing touches to large trays of tofu cheesecake. (3) A woman preparing scrambled tofu and fried soysage patties in the Hampshire College kitchens. (4) Members of Okita Enterprises and the Tennessee Farm: Charles Ishigawa, Robert Dolgin, Eddie Okita, and Michael Moorman. (5) Dr. Walter Wolf (Northern Regional Research Center, Peoria, Illinois). (6) Robert Rodale, Rodale Press, Emmaus, Pennsylvania. (7) Dr. Malcolm Bourne, Cornell University, Geneva, New York. (8) Michael Cohen, holding a baby and talking with Dr. Clifford Hesseltine.

Note: This is the earliest publication seen (Feb. 2003) that mentions Brightsong Tofu. Address: Colrain, Massachusetts.

1237. Leviton, Richard; Shurtleff, William. 1980. Estimates of production and sales of tofu and other soyfoods in the USA and Canada (News release). Soycrafters Assoc. of North America, 305 Wells St., Greenfield, Massachusetts 01301. 1 p. Feb.

• ***Summary:*** Early statistics compiled on the U.S. soyfoods industry: 188 tofu companies, employing 680 people, used 13,500,000 lb of soybeans to produce 33,750,000 pounds of tofu that retailed for $33,750,000.

Other soyfood manufacturers (including 27 tempeh companies and 5 miso companies), employing 225 people, used 4,500,000 lb of soybeans to produce 11,250,000 pounds of other soyfoods that retailed for $11,250,000. The figures were compiled largely by Shurtleff, who gave Soycrafters Assoc. permission to use them. On 8 Feb. 1980 Leviton also sent a letter to Linda Madl, Soybean Bluebook, American Soybean Assoc. with a request to publish these statistics; she never did. Address: 1. Sunrise Farm, Heath Rd., Colrain, Massachusetts 01340; 2. New-Age Foods Study Center, P.O. Box 234, Lafayette, California 94549.

1238. McGregor, Otis. 1980. Report from Ontario [Soya-Bean Growers' Marketing Board]. *Soycraft (Colrain, Massachusetts)* 1(2):10-11. Winter.

• ***Summary:*** "The Ontario Soya-Bean Grower's Marketing Board is a growers' board. In 1949, soybean growers in Ontario petitioned the Agriculture Department to establish a marketing plan and soybeans were declared as a regulatory commodity under the Ontario Farm Products Act. Soybean production in Ontario started in tests plots at the Ontario Agricultural College, Guelph, in 1893. By 1927, O.A.C. evaluated over 100 varieties. The Harrow Research Station began soybean plots in 1923 and later produced such varieties as Harman, Hardome, Harasoy, Harlan, Harcor, Harwood.

"Soybean acreage in Ontario competes with field corn."

Soybean production in Canada is 98% of Ontario origin. Ontario is deficient in production to meet the needs of the three crushing plants which now possess a daily production capacity of 3,550 tons. To be self-sufficient, production would require 1.2 million acres. Last crop year, the Ontario crushers purchased 13 million bushels from the U.S. which enter Canada tariff-free.

"In 1954, the Board, endeavoring to achieve greater competition in the marketplace, exported soybeans to Europe. In 1974, with the variety Harwood, the Board entered the human consumption market in Japan. Harwood, having a greater water-soluble protein, soon became distinguished in that market for tofu and miso.

"The Board negotiates on behalf of its 16,000 growers, the terms and condition of sales from the farm-gate to dealers and processors."

"Editor's note: Soybeans that the Board markets, suitable for tofu-making, include Hodgson, Wells, Harosoy 63, Harcor, Amsoy 71, Maple Arrow, and Evans." Address: Secretary-Manager OSBGMB, Box 1199, Chatham, ONT Canada N7M 5L8, Canada.

1239. Shantharam, S.; Gow, J.A.; Bal, A.K. 1980. Fractionation and characterization of two morphologically distant types of cells in *Rhizobium japonicum* broth culture. *Canadian J. of Microbiology* 26(2):107-114. Feb. [37 ref. Eng; fre]

• ***Summary:*** "Differential centrifugation of stationary phase broth culture of *Rhizobium japonicum* yielded two distinct types of morphological types of bacterial cells, rods, and small coccoid forms with capsulated and non-capsulated cells in each group... Both fractions were capable of nodule formation in the soybean." Address: Dep. of Biology, Memorial Univ. of Newfoundland, St. John's, Newfoundland, Canada A1B 3X9.

1240. Marquard, R.; Schuster, W.; Honarnejad, R.J. 1980. Produktivitaet, Oel- und Eiweissqualitaet von sechs Sojabohnensorten in Anbauversuchen auf zwei deutschen Standorten [Productivity, and quality of oil and protein of six soybean varieties in cultivation studies at two German locations]. *Fette, Seifen, Anstrichmittel* 82(3):89-93. March. [9 ref. Ger; eng]

• ***Summary:*** The six soybean varieties were: Caloria and Gieso (Germany). Altona (Canada). Merit and Beeson (USA). F 66/602 (Romania). The two locations were:

Gross-Gerau (Rhein-Main Region) and Rauisch-Holzhausen (20 km east of Marburg, a relatively cool place at the foot of the Vogelsberg mountains in Hesse). The two locations had distinctly different soil and climatic conditions. Although the protein content varied significantly, the oil content was almost constant. Address: 1-2. Institut fuer Pflanzenbau und Pflanzenzuechtung, Ludwigstrasse 23, 6300 Giessen, West Germany; 3. Tehran, Iran.

1241. Soja Soyfoods Cafe & Delicatessen. 1980. March. New soyfoods restaurant or deli. 10 Kensington Ave., Toronto, ONT, Canada M4Y 1C9.
• ***Summary:*** Leaflet. 1980. Describes the restaurant and the foods it serves. White. 1980. Starweek. April 5. p. 57. Menu. 1980. Soja goes to Mexico.

Menu. 1982. Shurtleff & Aoyagi. 1982. Report on Soyfoods Delis, Cafes & Restaurants. p. 3. Started in March 1980 by Mary Anderson. Address: Toronto, ONT, Canada.

1242. White, Jim. 1980. Dining out: Jim White goes on a soya spree at Soja and finds the salads and desserts respectable, but the tofu tiresome. Unlike MacArthur, he will not return. *Starweek (Supplement of the Toronto Saturday Star)*. April 5 to 12. p. 57.
• ***Summary:*** Soja, a soyfoods vegetarian restaurant at Kensington Market in Toronto, got mixed reviews. The author loved the tofu desserts but found too much tofu in everything. "You know tofu as bean curd, that squiggly, bland stuff that winks at you from the depths of a platter of Chinese mixed vegetables... tofu is a patty of compressed soya milk... its healthy but tasteless."

"Soja, by the way, means soya in Spanish and is pronounced as in 'So'dja like the meal? Wouldja come again?' The answer is No, pronounced emphatically. Not until the menu–like starch–is modified."

A photo shows Lynn Stirling and Mary Anderson in front of their restaurant. Address: ONT, Canada.

1243. Lang, H.C.; Buzzell, R.I.; Beversdorf, W.D. 1980. Soybean production. *Ontario Ministry of Agriculture and Food, Publication* No. 173. 17 p. AGDEX 141.
• ***Summary:*** "Soybeans were first introduced in Ontario in 1893 and were grown primarily as a hay crop... It is estimated that during 1979 soybeans were grown on 700,000 acres (283,290 ha) in Ontario, mainly in the traditional soybean growing area of Essex, Kent, Lambton, Middlesex and Elgin Counties. Despite this record acreage, $263 million of soybeans and soybean products were imported into Ontario during the soybean crushing year ending August 31, 1979. Soybean acreage in Ontario could expand to 1.2 million acres (480,000 ha) to supply those soybeans and soybean products imported from the United States." Address: 1. Extension agronomist, Ontario Ministry of Agriculture and Food; 2. Agriculture Canada, Harrow Research Station; 3. Crop Scientist, Univ. of Guelph. All: Canada.

1244. Ontario Agricultural College. 1980. Recognition banquet: Zavitz Hall (Leaflet). Guelph, Ontario, Canada: OAC. 2 panels. 22 cm. Single sided.
• ***Summary:*** On the right panel is a photo of Zavitz Hall. The banquet will take place on Monday, 14 April 1980, with a reception at 6:30 p.m. and the banquet at 7:15.

On the left panel is a detailed history of Zavitz Hall. "This historic structure was formally opened as the Field Husbandry Building on Tuesday, January 12, 1914 by Canada's Minister of Agriculture, the Honorable Martin Burrell. Built by the Government of Ontario and financed by the federal government it was specifically designed for teaching and research related to plant production.

"In his opening remarks the minister stated, 'This building erected to meet the ever growing needs of agronomical work stands also, in a sense, as a tribute to the sterling worth and loyal services of the man who has made that work of such high importance to agriculture of Canada–Professor C.A. Zavitz.' The building has since been named Zavitz Hall."

"Built at a cost of $60,000 this was a significant investment for the 200 million dollar field crops industry of Ontario in 1914."

"The basement was divided into storage rooms for grains, greases, seeds and equipment. There, many hundreds of thousands of packages of seed were prepared and organized for research plots throughout the length and breadth of Ontario. These were distributed to thousands of graduates and farmers through the Ontario Agricultural and Experimental Union for assessment of the plant strains they produced. The produce was returned and reprocessed for calculation of yield and other comparisons. Such seeds also were used on the experimental grounds for meticulous testing and comparison by Dr. Zavitz and those who followed.

"Crop research plots surrounded the building for many years after construction, for during the first 50 years after the opening of the building served the Field Husbandry Department. In the latter years of use by that department, (now Crop Science, OAC) even the basement was converted to offices, classrooms and laboratories for students, staff and faculty as the seed processing was squeezed out to a new 'seed' building on campus. The latter building after complete renovation and addition now houses the School of Landscape Architecture.

"Since 1965, Zavitz Hall has served as administrative offices for Wellington College and as a section of the library until the opening of McLaughlin library. Today it serves as a studio facility of the Fine Arts Departments and as office space for other University units such as the Centre for Resources Development.

"Today the quaint building is located at the centre of campus, dwarfed by the concrete of the University Centre, McLaughlin Library and the Physical Sciences Building. Zavitz Hall stands in tribute to Dr. Charles Ambrose Zavitz, graduate of the first degree class of OAC, experimentalist, Director of Field Experiments, Head of the Field Husbandry Department, developer of superior field crop varieties and meticulous researcher from 1888 to 1942."

Talk with James R. Zavitz. 2001. Dec. 6. This banquet is to celebrate the reopening of the refurbished Zavitz Hall. The banquet was held in Peter Clark Hall, a different building (a student center on campus), because there are no banqueting facilities in Zavitz Hall. Address: Guelph, Ontario, Canada.

1245. **Product Name:** Brown Rice Miso.
**Manufacturer's Name:** Shin-Mei-Do Miso Co.
**Manufacturer's Address:** 5 Wren Road, Denman Island, BC, Canada V0R 1T0. Phone: 604-335-0253.
**Date of Introduction:** 1980. April.
**Ingredients:** Brown rice koji (only a little bran removed), soybeans, sea salt, water.
**Wt/Vol., Packaging, Price:** 450 gm plastic tub.
**New Product–Documentation:** Talk with Yasuo Yoshihara. 1996. March 22. Their third miso, introduced in April 1980, was Brown Rice Miso. They put the brown rice through a rice polisher to remove a just little bit of the bran; this is necessary so the koji culture can grow. This miso is sold only to natural- and health food stores.

1246. Hope, Jane; Bright-See, E. 1980. Milk digestion aid now in liquid form: Nutrition matters. *Toronto Star (Ontario, Canada).* May 14. p. D3.
• ***Summary:*** Those who don't drink milk because they can't digest its lactose [a sugar], might want to try LactAid; just add 4-5 drops to a glass of milk.

Other people are forced to avoid milk and milk products because they are allergic to milk protein. Babies with milk allergies are often given formulas based on soy protein. "Since soy protein is a high quality protein, the babies grow just as well as if they were getting regular milk."

Adults who are allergic to daily milk might "consider using the soy products which are available in many Chinese grocery stores. These include soybean milk and bean curd (also known as tofu or dow fu). The protein in these products is very good." And they contain no lactose.

Small photos show Jane Bright and Dr. E. Bright-See.

1247. Ananth, J. 1980. Tardive dyskinesia: Myths and realities. *Psychosomatics* 21(5):389-91, 394-96. May. [75 ref]
Address: Assoc. Prof., Dep. of Psychiatry, McGill Univ.; Senior Psychiatrist, Allan Memorial Inst.; Director, Continuing Medical Education, Douglas Hospital Center, Montreal, Canada.

1248. **Product Name:** Tofu.
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2847 Dundas Street West, Toronto, ONT, M6P 1Y6, Canada. Phone: 416-762-1257.
**Date of Introduction:** 1980. May.
**Ingredients:** Water, organically grown soybeans, magnesium chloride.
**Wt/Vol., Packaging, Price:** 550 gm.
**How Stored:** Refrigerated.
**Nutrition:** Per 100 gm.: Calories 72, protein 7.6 gm, carbohydrate 2.3 gm, fat 5 gm.
**New Product–Documentation:** Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owners: Pat Guardino & Paul Whitehead.

Label. 1985. 6.75 by 9.5 inches. Plastic film. Orange, green, yellow, and brown on clear. "A Good Source of Protein. Made from Soybeans Organically Grown in Canada." Back label says, "Health is the most precious thing you have. Sustain it by eating good food. Come to our Soyateria for information, education and cooking ideas on Tofu, Soy-Pro, Soyettes, and all of Soy City's delicious and nutritious products. Soyateria–The Soybean Information Center."

Label sent by Jon Cloud. 1989. May 5. Says that this product was introduced in the spring of 1980.

1249. Le Claire, J.-M.; Le Meter, L. 1980. 2.–Du soja, mais aussi des anchois du coton, du tournesol... [2.–About soybeans, but also anchovies, cotton, sunflower...]. *Ouest-France.* June 10. [Fre]
• ***Summary:*** Part two in a series on "Strategies concerning proteins," this article compares various protein sources. Soy is the leading source of protein for both animal feeds and (among oilseeds) human foods. How soybeans have flown into the lead: The history of soybeans is exemplary. This American yellow gold, of which only 1.4 million tonnes (metric tons) were produced in 1935, experienced a surge in production during World War II: cut off from their suppliers of vegetable oils, the U.S. rushed into growing soybeans as a source of oil. Then came the aftermath of the war and the increase in meat consumption in industrialized countries. The needs of Japan and especially Western Europe strongly contributed to the spread a feeding model that has been described since as "Corn-soy," the corn bringing energy and soybeans the indispensable proteins to balance the ration. At the same time, the Americans created animal stock adapted to the consumption of these products.

A monopoly was thus effectively established because China, an equally important producer, was absent from the world market. But in '72, then especially in '73, came a

shortage of fish flour. At the time, all the press was concerned to know if, yes or no, a bed of anchovies had been located along the length of the Peruvian coast. A smaller-than-expected American soybean harvest did not help to calm the appetites without a doubt fueled by a troubled demand. And this in addition to unanticipated Russian purchases came to again weigh upon the market. American farmers profited from it to ask for an embargo. Remember the few weeks of panic that this measure, nonetheless quickly lifted, provoked in places specialized in European animal feed? The Brazilians are infiltrating this crack in the system: they are today at a production of the order of 15 million tonnes, while the U.S. produced 51 million tonnes in 1978. In three years, the Brazilian example has been followed by their Argentinian neighbors (about 5 million tonnes at present).

The small place of other proteins: In the take-off of this primary material [soybeans], Europe is not neutral. It holds to the contrary a strategic role: that of principal importer (14 million tonnes in '78, for $4 billion). Here, the terms of exchange have been wisely studied. Everything happens as if the U.S. and the European Community *(Communauté)* had signed anew a pact of non-aggression. International negotiations provide proof of it: the Americans reluctantly accept the community protection of the cereal market, in exchange, the Europeans open wide their borders to American proteins; only France, among the nine, raises objections (it imports no less than 2.9 million tonnes of soybean oilcakes).

What place remains for other protein sources? A few exceptions aside, it [the place of other protein sources] has a strong propensity to diminish. Thus for the cottonseed oilmeal, a by-product of textile fiber: despite its second position of nearly 8 million tonnes, it does not represent more than 10% of world protein production destined for animal feed.

Also fish, that experienced a considerable expansion between '60 and '71 however and whose production borders that of cottonseed, diminished with the over-exploited anchovy beds.

As for the rest (less than 20% of world production), its small numerical importance does not however obliterate its future. It is in fact perhaps thanks to rape-seed, broad beans, forage peas, that Europe can diminish its dependence in regard to the American continent. Mr. Dronne writes about rape-seed: "The progress of technology and genetics leaves hope for a vast enlargement of its outlets for European and Canadian production..."

Finally, we must not forget the sunflower, principal source of oilcakes in Eastern European countries, nor the peanuts of Senegal or India, if their quality can be a bit better mastered.

Soybeans remain however and for a long time still, without a doubt, a principal material at a relatively good price. This fact, plus its "technical" qualities, explains its success. But it would be dangerous, for the countries that need it, to sleep on the laurels of the soybean. "Even more so," insists Mr. Dronne, "in face of the growing rise of devices to pay for the importations of oil, the principal agricultural exporting countries can be tempted to utilize food arms." Address: France.

1250. Kitts, D.D.; Krishnamurti, C.R.; Kitts, W.D. 1980. Uterine weight changes and tritium labeled-uridine uptake in rats treated with phytoestrogens. *Canadian J. of Animal Science* 60(2):531-34. June. [9 ref]
• ***Summary:*** Note: This is a fairly early report showing that soybeans have estrogenic activity. Biological tests in rodents and ruminants suggest that plant estrogens (phytoestrogens) resemble natural occurring internal (endogenous) estrogens in their mode of action. Estradiol-17β, diethylstilbestrol (DES) and certain phytoestrogens extracted from soybean meal and alfalfa hay were administered intraperitoneally [injected into the abdomens] of immature female rats. The major estrogenic compounds in soybean meal were genistein and daidzein, while those in alfalfa hay were genistein, formononetin and coumestrol. Coumestrol and genistein exhibited uterine responses (changes in uterus weight and moisture content) similar to but much weaker than those of estradiol-17β and DES; the dose required to produce the effects was approximately 100 to 1000 times higher than in the latter two compounds. Address: Dep. of Animal Science, Univ. of British Columbia, Vancouver, BC V6T 2A2, Canada.

1251. **Product Name:** Tempeh.
**Manufacturer's Name:** Noble Bean.
**Manufacturer's Address:** (1) 38 Grange Ave., Chinatown, Toronto, ONT, Canada; (2) From Jan. 1984–293 Augusta Ave. (in Kensington Market, near Oxford St.), Toronto, ON M5T 2M2.
**Date of Introduction:** 1980. June.
**Ingredients:** Soybeans, water, culture.
**Wt/Vol., Packaging, Price:** 12 oz perforated plastic bag (not vacuum packed). In spring 1982 an 8.5 oz size was introduced.
**How Stored:** Frozen.
**New Product–Documentation:** Label. 1985, undated. 5.25 inches square. Green on yellow. "An excellent source of protein. Culturing fine tempeh since 1979." 227 gm. Recipes for Tempeh Shish Kebab, Indonesian Fried Tempeh, Nutritional Yeast and Tempeh Casserole; Letter from Allan Brown. 1985. Aug. 7. "I have been making tempeh since 1979. [He started making it commercially on The Farm in Lanark, Ontario.] We bought Robert Walker's equipment in 1980. We just moved back to the country, near Plenty Canada. We're at R.R. #1, McDonalds Corners, ONT, K0G 1M0, Canada."

Talk with John Gabriel, former tempeh maker and member of The Farm, now living in Nevada City, California. 1992. April 28. Allan Brown is now making 200 lb/day of tempeh, which makes him the biggest tempeh maker in Canada.

Talk with Allan and Susan Brown. 1998. May 11, followed by letters from Allan and Susan. Their company is still named Noble Bean, not Noble Beans. They first began making tempeh commercially in mid-1979 at The Farm in Lanark, Ontario. After about 6 months, by the time Alan and Susan were ready to leave The Farm, Robert Walker had suffered a stroke and his tempeh-making equipment was up for sale. So as the Browns moved to Toronto, they bought Robert's equipment. They located a small shop at 38 Grange Ave., in the heart of Toronto's Chinatown, and founded Noble Bean. There they began making tempeh in about June of 1980. They produced 200/300 lb/week. Their first distributor was Ital Foods, a Rastafarian community that made vegetarian sandwiches and distributed them, along with Noble Bean's tempeh, to natural food stores. Susan writes: "When we began to make tempeh in Toronto, I made the starter. I sterilized bottles of rice in a pressure cooker, and inoculated them with spores from the Tempeh Lab in Summertown, Tennessee (made by Cynthia Bates). We incubated them in our tempeh incubator. In 1983 I started using a larger autoclave to prepare the rice medium. When our second son, Marty Brown, was born (on April 13, 1988), we began buying bulk inoculant from the Tempeh Lab, as we still do."

Allan writes: "In the fall of 1983 we moved back to The Farm near Lanark, Ontario, to have a home birth. We brought a happening scene with us–six freezers and a strong market in Toronto 225 miles away. We were feeling out what things were like an discovered much dissention and competitive vibes among the men (Plenty vs. Farm Foods, etc.). After one week we knew we weren't going to stay. It was coming apart at the seams. But while we were there amongst good friends, Noble Bean was a community business for a short while. Our first son, Casey Brown, was born at the community on Nov. 6, 1983. We left in Jan. 1984, when Casey was 2 months old, and moved back to Toronto, where we rented a house at 293 Augusta Ave. (two doors from Oxford St., postal code M5T 2M2) in Kensington Market. This was the ethnic food center of Toronto. At our house on Augusta, we had our tempeh shop on the first floor, and we lived upstairs. We were then distributing to 40 stores weekly. We also distributed tofu burgers from La Soyarie of Ottawa, Ontario. In late 1984, EcoFarms began distributing our tempeh to farther-flung stores in Ontario."

In June 1985, after about 5 years in Toronto, they bought ten acres of land near McDonalds Corners (not far from The Farm in Lanark, Ontario), and moved Noble Bean onto that land.

Note 1. This is the earliest soyfoods company seen (June 1998) that has the term "Noble Bean" in the company name.

Note 2. This is the earliest known commercial soy- or tempeh product made by Noble Bean in Canada.

1252. Food City. 1980. Food City: We reserve the right to limit quantities (Ad). *Toronto Star (Ontario, Canada).* July 23. p. A10.
• ***Summary:*** Near the center of this full-page grocery store ad: "Tofu (soya bean curd) product of Ontario, 16-oz. package 99¢" Address: Toronto.

1253. United Press International (UPI). 1980. Soy foods heralded as key to survival. *Toronto Star (Ontario, Canada).* July 28. p. C4.
• ***Summary:*** "Urbana, Illinois (UPI)–If the 1980s are the years of tofu, the '90s belong to tempeh and miso." These foods are believed to hold the key to world hunger problems.

The article is a summary of the Soyfoods Association of North America's annual meeting, at the University of Illinois. Speakers included William Shurtleff, Dr. Clifford Hesseltine, Richard Leviton.

1254. Fiering, Steve. 1980. The unfinished evolution of the American okara press. *Soyfoods* 1(3):38-39. Summer.
• ***Summary:*** This press, developed in America, has evolved through three working models–each of which is described in detail and its strong- and weak-points analyzed: The first, developed by Jay Gibbons of North Country Soyfoods (Crystal Hills) in Bethlehem, New Hampshire, cost $1,400 without a pressing rack in the box. The second, which used Jay's as a model, was built by Steve Fiering and Eric Kairys of The Soy Plant in Ann Arbor; it also cost $1,400. Blueprints for this press are available for $0.50. The third was developed by Bob Carr and Paul Sheldon of the Cleveland Tofu Co. (Ohio) at a cost of $1,200. Eric Kairys and Paul Sheldon would like to build this style press for other clients.

Photos by Frank Ward show: Paul Whitehead, designer of the okara press at Soy City Foods (Toronto, Canada). Crystal Hills' press. The press at Nasoya Foods. Address: The Soy Plant, 771 Airport Blvd. Suite 1, Ann Arbor, Michigan.

1255. Hills, Benjamin. 1980. New jigs for pressing tofu. *Soyfoods* 1(3):41-42. Summer.
• ***Summary:*** A photo shows Pat Guardino of Soy City Foods, Toronto, and his tofu press. Address: Surata Soyfoods Inc., 518 Olive St., Eugene, Oregon 97401.

1256. Huff, Murray W.; Carroll, Kenneth K. 1980. Effects of dietary protein on turnover, oxidation, and absorption of

cholesterol, and on steroid excretion in rabbits. *J. of Lipid Research* 21(5):546-58. July. [56* ref]
Address: Dep. of Biochemistry, Univ. of Western Ontario, London, ONT Canada N6A 5C1.

1257. Leviton, Richard. 1980. Soyfoods in Toronto. *Soyfoods* 1(3):14-19. Summer.
• ***Summary:*** Discusses Vital Eat, Pyung Hwa, Soy City Foods, and Victor Food Products. Victor Food products (102 Hymus Rd., Scarborough, Ontario, Canada M1L 2C9) was founded and is owned and managed by Mr. Stephen Yu. In the 3,600 square foot tofu factory, 13 workers (mostly Vietnamese refugees) produce 1,900 lb/day of tofu, 750 gallons/week of Nutrisoya soymilk, and about 200 quarts/day of kinugoshi soybean pudding. Mr. Yu, who was born in China and educated in California, came to Toronto in 1977 to make an initial market survey. He opened his plant in Feb. 1978, with an initial production of 900 lb/day. Mr. Yu now has accounts in all major Toronto supermarket chains. He reaches about 40% of the Oriental market and about 40% of the overall soyfoods market. He speaks fluent English and is "far more forward looking and market conscious than his Oriental competitors in the Toronto area." His production process and equipment are described in detail. Last summer he appeared on a 10-minute television feature that depicted the story of soybeans from field to shop to table. This was followed, in Jan. 1980, by a major article which profiled his company in the *Toronto Star.* This publicity ushered his tofu into the three big supermarket chains not yet carrying it and sales in the four chains that were rose 100%. Note: This is the earliest document seen (April 2001) that mentions Victor Food Products in Canada.

Soy City Foods, at 2847 Dundas St., is a new soy production site due to open in the spring Pat Guardino is general manager and Leonard Bugyra is sales manager. The company is a subsidiary of Golden Age, Inc., a spiritual group which operates a successful vegetarian restaurant downtown and is currently installing a second one next door. The company will start by producing about 600 lb/day of tofu, as well as soymilk and soysage. They will supply their contiguous restaurant and sell bulk soyfoods from their own retail counter in the storefront. They will also produce tofu cheesecakes and okara cookies in the restaurant.

Photos show Soy City Foods and its owners (incl. Pat Guardino), Pyung Hwa Tofu Shop, and Victor Yu of Victor Food Products with Nutrisoya soymilk. Address: Colrain, Massachusetts.

1258. Leviton, Richard. 1980. Traditional tofu in New Hampshire. *Soyfoods* 1(3):34-37. Summer.
• ***Summary:*** There are two tofu shops in New Hampshire. Discusses the work of Jay and Pat Gibbons of North Country Soyfoods (once called Crystal Hills Tofu Shop, in Bethlehem, New Hampshire) and Robert Cook and Viney Loveland of Willowbrook Soyfoods (Gilsum, New Hampshire). Each shop "illustrates the virtues and drawbacks of operating a small, labor-intensive, low-technology, low-capital shop that serves a local clientele. Each shop embodies a portion of that original inspiring vision from *The Book of Tofu* of a multiplicity of tiny, traditional, community based tofu shops whose tofu crafters deliver fresh bulk tofu every day.

Crystal Hills opened in September 1977, after a year of preparation by Jay and Pat. Now named North Country Soyfoods, it has modified the traditional soysage recipe by eliminating wheat germ, substituting barley malt for honey, and adding 5% vinegar to increase the shelf life. The company supplies large amounts to Jon Cloud of Cloud Mountain, who helps to export about 1,000 lbs every 3 weeks to co-ops in Montreal and Toronto.

Photos show: Robert Cook and Viney Loveland standing in front of the Willowbrook Soyfoods shop. Jay and Pat Gibbons. Adding nigari to soymilk at Crystal Hills. Stirring the soy slurry in a large caldron. Then pressing the okara for soymilk. Address: Colrain, Massachusetts.

1259. **Product Name:** VFP Nutrisoya (Soymilk).
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1980. July.
**Wt/Vol., Packaging, Price:** Plastic bottle, about 1 liter.
**How Stored:** Refrigerated.
**New Product–Documentation:** Leviton. 1980. Soyfoods. Summer. p. 17. The company makes 750 gallons a week, flavored with sugar. In plastic quarts. Leviton. 1981. Soyfoods. Winter. p. 55. A black-and-white photo shows 6 of the plastic bottles. The size looks like about 1 liter. Soya Bluebook. 1986. p. 102.

1260. **Product Name:** Kinugoshi Soybean Pudding.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1980. July.
**New Product–Documentation:** Leviton. 1980. Soyfoods. Summer. p. 17. The company makes "about 200 quarts daily of *kinugoshi* soybean pudding."

1261. Wang, H.L. 1980. Enhancement of nutritive factors in fermented foods. Paper presented at the International Fermentation Symposium, London, Canada. July 21-23. 9 p. Address: NRRC, Peoria, Illinois.

1262. Yoshihara, Lulu. 1980. Shinmei-do Miso Company. *Soyfoods* 1(3):10. Summer.

• ***Summary:*** In this letter, the author tells of the founding, activities, products, and production process of this small miso company. Her husband and co-worker, Yoshi, is Japanese. They have the capacity to make 80 gallons/week of miso but are operating below capacity for lack of space and firewood. Their main miso variety is rice (kome) miso. Barley miso will be ready in early 1981 and brown rice miso will be ready in the fall of 1981. "Our markets are the Japanese food coops and natural food stores. We started in spring 1979 and have just sold our first miso. Our first experimental batch was made in February 1977." Address: Shinmei-do Miso Co., Wren Rd., Denman Island, BC, Canada, V0R 1T0.

1263. Hope, Jane; Bright-See, E. 1980. Vegetarian diets need good planning: Nutrition. *Toronto Star (Ontario, Canada).* Sept. 24. p. C-3.
• ***Summary:*** Describes the different types of vegetarians and their different needs. The section titled "Soy protein" begins: "But the amount and quality of protein in plant foods is usually lower than that found in animal foods. The exception, of course, is soy protein. Soy products, such as cakes [tofu?] and soy milk, are excellent sources of protein."

Discusses protein complementarity and good books on vegetarian nutrition and recipes.

1264. Bal, Arya K.; Shantharam, S.; Verma, D.P.S. 1980. Changes in the outer cell wall of *Rhizobium* during development of root nodule symbiosis in soybean. *Canadian J. of Microbiology* 26(9):1096-1103. Sept. [31 ref. Eng; fre]
• ***Summary:*** The "*Rhizobium* cell-wall membrane undergoes significant changes during establishment of the root nodule symbiosis." Address: 1-2. Dep. of Biology, Memorial Univ. of Newfoundland, St. John's, Newfoundland, Canada A1B 3X9; 3. Dep. of Biology, McGill Univ., Montreal, P.Q., Canada.

1265. **Product Name:** Tofu.
**Manufacturer's Name:** Cantai Tofu Corp.
**Manufacturer's Address:** 700 S. Leland Ave., Thunder Bay, ONT, P7E 2P6, Canada.
**Date of Introduction:** 1980. September.
**New Product–Documentation:** Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name and address. No phone number.

1266. *League for International Food Education (LIFE) Newsletter.*1980. Soybeans in Guatemala. Sept. p. 3.
• ***Summary:*** "With 1500 lbs of soybeans donated by UNICEF, Plenty has been teaching the people of Guatemala, concentrating on the wives of farmers who have shown an interest in growing soybeans, how to make soymilk and tofu (bean curd) using a metate and utensils traditionally found in their homes.

"Classes are held once a week for four students at a time. All students have learned the process in one lesson. They return to their homes provided with cheesecloth and small bags of beans. After they use those, they can return for more. Most students have successfully made tofu in their homes and say their families like it.

"Plenty plans to set up a village-scale soy processing plant which will produce 100 lbs of tofu and forty gallons of icebean (ice cream made from soymilk) three times a week. Funded by Plenty and CIDA/Canada, the plant will supply free icebean for school lunch programs. After an initial period of training, the soy plant will evolve into a local cottage industry and a means of financial support for members of the community.

"For further information, please write to: Suzy Jenkins; Soy Technician; Plenty; 156 Drakes Lane; Summertown, Tennessee 38483 USA."

1267. Ontario Soya-bean Growers' Marketing Board. 1980. Soybean cuisine. P.O. Box 1199, Chatham, Ontario N7M 5L8, Canada. 58 p. Sept. 22 cm.
• ***Summary:*** Contents: History of soybeans. Soybean salute. Soybean cooking methods. Soups. Main courses. Salads & dressings. Roasted soybeans & snacks. Soy flour, muffins & breads. Squares, cookies & cakes.

The soy ingredient used in most recipes is either cooked whole dry soybeans, roasted soybeans, or soy flour. Quite a few of the recipes are submitted by the wives of Ontario farmers. Address: P.O. Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

1268. Ontario Soya-bean Growers' Marketing Board. 1980. L'art d'apprêter le soja [The art of preparing soya]. P.O. Box 1199, Chatham, Ontario N7M 5L8, Canada. 58 p. Sept. 22 cm. [Fre]
• ***Summary:*** Contents: History of soybeans. Soybean salute. Soybean cooking methods. Soups. Main courses. Salads & dressings. Roasted soybeans & snacks *(Soja Grillé et Collations).* Soy flour, muffins & breads. Squares, cookies & cakes.

The soy ingredient used in most recipes is either cooked whole dry soybeans, roasted soybeans, or soy flour. Quite a few of the recipes are submitted by the wives of Ontario farmers. An identical book, titled *Soybean Cuisine,* was published at the same time in English. Address: P.O. Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

1269. **Product Name:** Tofu.
**Manufacturer's Name:** Rubenstein Tofu Shop.

**Manufacturer's Address:** R.R. 1, Cleveland, NS, B0E 1J0, Canada.
**Date of Introduction:** 1980. September.
**New Product–Documentation:** Letter/Order for the book *Tofu & Soymilk Production* from Mark Rubenstein. 1979. Sept. 19. He is located at the address shown above.

Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name and address. No phone number. Owner: Mark Rubenstein.

1270. **Product Name:** Tofu.
**Manufacturer's Name:** Shaw Grocery.
**Manufacturer's Address:** 1447 Gerard St. East, Toronto, ONT, M4L 1Z9, Canada. Phone: 416-466-8058.
**Date of Introduction:** 1980. September.
**New Product–Documentation:** Soyfoods Center. 1980. Sept. Tofu shops and soy dairies in the West (2 pages, typeset). Gives the company's name, address, and phone number. Owner: Mr. Yen Yung Shaw.

1271. Shurtleff, William. 1980. Tofu shops and soy dairies in the West. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 2 p. Sept. Unpublished typescript.
• ***Summary:*** Lists the name, address, phone number and owner of all known tofu shops and soy dairies in the USA (alphabetically by state), Canada, Latin America, Europe, Australia & New Zealand, Africa, and the Middle East. Address: Lafayette, California. Phone: 415-283-2991.

1272. Asimi, S.; Gianinazzi-Pearson, V.; Gianinazzi, S. 1980. Influence of increasing soil phosphorus levels on interactions between vesicular-arbuscular mycorrhizae and *Rhizobium* in soybeans. *Canadian J. of Botany* 58(20):2200-05. Oct. 15. [29 ref. Eng; fre]
• ***Summary:*** In nodulated soybeans growing in sterile unamended soil, growth and yield increases were obtained by inoculation with the vesicular-arbuscular (VA) mycorrhizal fungus *Glomus mosseae*. These were accompanied by improved phosphorus uptake (phosphorus is probably the most important nutrient for growth and effective nodulation of legumes), lower root to shoot ratios, better nodulation with higher nitrogenase activity, and changes in the pattern of the latter during plant growth. Phosphate fertilization increased yield and phosphorus content, but "higher levels of phosphate fertilization considerably diminished infection and, in particular, fungal spread within the roots." Address: Station d'Amélioration des Plantes, Institut National de la Recherche Agronomique [INRA], BV 1540, 21034 Dijon, France.

1273. Leviton, Richard. 1980. The soy deli: Tofuna salad to soysage-on-rye. *In Business.* Sept/Oct. p. 44-47.
• ***Summary:*** "The soy delicatessen is emerging as the most exciting and innovative means of retailing these ready-to-eat natural foods." Discusses in detail: Hip Pocket Tofu Deli in Columbus, Ohio, started on 1 March 1980 by Mick Vissman and Bill Lutz; Soja Soyfoods Cafe & Delicatessen in Toronto, ONT, Canada, started in Feb. 1980 by Tucker Held, Lynn Sterling, and Mary Anderson; Far Pavillians [sic, Pavilions] in Telluride, Colorado, opened in October 1977 and now run by Catherine Peterson; The Tofu Shop deli in Rochester, New York, started in November 1978 by Greg Weaver, Norman Holland, and Andy Schecter; The Soy Plant Deli in Ann Arbor, Michigan, a cooperative; The Yellow Bean Trading Company, started in September 1978 by Timothy and Carol Huang. They opened a retail soy deli in March 1979; The Good Belly Deli in Boulder, Colorado, which recently changed its name from "Cow of China," is run by Steve Demos, who also owns White Wave; and Mintz's Buffet, in the upper East side of New York City. "David and Ethyl Mintz have incorporated tofu into their traditional kosher Jewish deli, featuring dairyless tofu cheesecakes, tofu sauces, tofu in vegetable egg souffles, along with their matzoh balls, gefilte fish, and chopped liver, or soup to nuts, old time foods like Grandma used to make, a big menu."

Photos show: The exterior of Soja Soyfood Cafe, with Tucker Held, Lynn Stirling, and Mary Anderson standing below the sign. The wooden wall menu at The Tofu Shop in Rochester, New York. Greg Weaver and one other person working inside the kitchen of The Tofu Shop. Address: 100 Heath Rd., Colrain, Massachusetts 01340.

1274. **Product Name:** Tofu.
**Manufacturer's Name:** Sooke Soy Foods Ltd.
**Manufacturer's Address:** 2625 Otter Pt. Rd., R.R. 2, Sooke, BC, Canada V0S 1N0. Phone: 604-642-3263.
**Date of Introduction:** 1980. October.
**Ingredients:** Organic soybeans, water, nigari (magnesium chloride–extract of sea water) (1988).
**Wt/Vol., Packaging, Price:** 16 oz packed in water in molded plastic tray with heat-sealed, peel-off plastic film lid.
**How Stored:** Refrigerated.
**Nutrition:** Per 100 gm.: Calories 70, protein 9 gm, carbohydrate 1 gm, fat 5 gm, sodium 7 mg, potassium 40 mg.
**New Product–Documentation:** Leviton. 1982. In a Small Bright Building. Wayne Jolley. The Healing Exchange News. 1988. Jan. p. 7. "The only organic tofu and soymilk available in Victoria."

Talk with and letter from Wayne Fatt. 1988. Sept. 28-29. The business was started in 1980 in a small building in Sooke, a community on the outskirts of Victoria. It has since relocated twice. In May 1988 Wayne Fatt purchased the company from Wayne Jolley, and in July 1988 moved from

2625 Otter Point Rd., R.R. 2, Sooke, BC, V0S 1N0 to a much larger facility at 4247 Dieppe, in Victoria. The company name is unchanged. They now make the following soyfood products, all of which are organic: Tofu (packaged and bulk), herb tofu, tofu cutlets, tofu burgers, tempeh, tempeh burgers, many pasta types: linguini, buckwheat linguini, mixed rotini, whole wheat fettuccine (plain, spinach, and herb), SuperSoy organic soya drink (natural, malted, or mocha). Non-soy products include wheatlets (seitan, formerly called Vegetarian Wheat Cutlets, launched in Sept. 1987) [garlic, ginger, or plain flavors], mochi (introduced Nov. 1985) [miso, brown rice, multi nut/maltinut, raisin & cinnamon, plain flavors], amazake [plain, blueberry, nut, strawberry].

Label. 1988, received. 5 inches square. Blue, green, yellow and white on clear plastic film. Logo of sun rising behind fjords. Address: 2625 Otter Point Rd. "A Good Source of Protein" written in large letters across top of label. Recipe for Tofu Cutlets.

1275. Esko, Edward; Esko, Wendy. 1980. Macrobiotic cooking for everyone. Tokyo: Japan Publications, Inc. 272 p. Nov. Foreword by William Tara, Director, Community Health Foundation, London, England. 26 cm. [50 ref]
• ***Summary:*** The authors studied in Japan (mostly Kyoto), from Sept. 1978 to May 1979, at which time they returned to Boston. In the summer of 1979 "more than 100 delegates from various regional centers throughout the United States and Canada met in Boston for the first North American Congress of Macrobiotics." Part I of this book discusses the theory of macrobiotics and Part II gives recipes. Unfortunately, the book has no index, and the bibliography gives no years of publication. There are chapters on: Seitan, fu, and noodles (incl. soba), and Sea vegetables.

Soy-related recipes include: Brown rice and soybeans (p. 90). Miso soft rice (p. 96). Somen with deep-fried tofu (p. 118). Kenchin soup (with deep-fried tofu cubes and tamari, p. 130). Okara soup (p. 132). Miso soups (p. 137-143; 12 recipes are given plus a long letter from Jan Belleme, about how she and her husband, John, who arrived in Japan in late October 1979, are now living with the Onozaki family and studying miso-making there–p. 138-39). Sauteed cucumbers and miso (p. 154). Boiled cabbage, sweet corn, and tofu (p. 155). Udon-vegetable bane (with deep-fried tofu, p. 159). Steamed kale and tofu (p. 161). How to make sprouts (incl. soybean sprouts, p. 177).

Chapter 5 is titled "Bean dishes, including tofu and natto." It states (p. 178-79, without citing the source) that "In China and Japan there is a proverb, 'A man who eats too many beans becomes a fool.'... Lima beans and soybeans are both very yin, and require thorough chewing. They should be eaten only on occasion and in small quantities... Kombu can be placed on the bottom of the pot when cooking chickpeas, soybeans, lima beans or kidney, pinto and navy beans. I have found that kombu definitely improves their flavor, and because of its high mineral content, creates a very balanced dish." To pressure cook soybeans so that they do not clog the steam escape valve, first boil them for 30 minutes. Skim the foam off the top as it rises, and when no more foam rises to the surface you may place them in a pressure cooker and continue cooking until done. Recipes include: Japanese black beans (black soybeans). Soybeans with kombu and burdock. Soybeans with lotus root and salmon. Following a long discussion of tofu, Homemade tofu. Tofu with scallions. Tofu with bonito flake broth. Baked tofu with miso/lemon sauce. Broiled tofu. Tofu loaf. Steamed tofu rolls. Deep-fried tofu cakes. Aburage (Age or deep-fried tofu). Stuffed age pouches. Okara. Okara croquettes. Sautéed natto. Natto rice or noodles. Natto tempura. Dried natto.

Hijiki with soybeans (p. 193). Hijiki and deep-fried tofu (p. 194). Tempuraed tofu-nori rolls (p. 198). Koi-koku (Carp miso soup, p. 220). Daikon and tamari. Scallion miso. Green peppers and miso (p. 224). Miso condiments (p. 226). Tamari. Moromi (p. 227). Rutabaga-tamari pickles (p. 233). Quick miso pickles (p. 234). Tofu tamari dressing (p. 236). Tofu-sesame dressing. Shiro-miso-tofu dressing. Miso dressing (p. 237). Tamari-lemon dressing. Tamari-rice vinegar dressing. Miso-tahini dressing (p. 238). Miso-rice vinegar dressing. Miso walnut dressing. Miso-tahini spread. Sesame miso spread. Miso-nut spread (p. 239). Lentil-miso spread. Lima bean miso spread (p. 240). Tofu dip (p. 243). Amazake (p. 247-48). Clear broth soup with tofu & scallions (p. 253). The glossary lists many soy products plus azuki beans, sea vegetables (many types), gluten, koji, kuzu, mochi, natto, nigari, okara, seitan, tekka, tempeh, umeboshi, unohana (okara), and yuba.

Macrobiotic periodicals include: *East West Journal* (Brookline, Massachusetts). *Kushi Institute Study Guide and Kushi Inst. Newsletter* (Brookline, MA). *The Order of the Universe* (East West Foundation, Brookline, MA). *The Macrobiotic Review* (East West Foundation, Baltimore, Maryland). *Spiral* (Community Health Foundation, London). *Le Compas* (Paris). Note: The date each periodical began publication is not given.

The lengthy section on seitan (p. 110-13) gives a detailed recipe for making seitan at home using the short method and 3½ lb hard spring wheat flour or hard red winter wheat flour. The broth is made with kombu and tamari. Seitan recipes include: Seitan stew. Seitan fried rice. Stuffed mushrooms (with sauce). Stuffed squash or Hokkaido pumpkin. Address: Boston, Massachusetts.

1276. Griffith, G.R.; Meilke, K.D. 1980. A description of the market structure and agricultural policies in five regional oilseed and oilseed product markets. *University of Guelph, School of Agricultural Economics and Extension Education, Publication* AEEE/80/13. 107 p. Nov. [157 ref]

• ***Summary:*** Contents: 1. A summary of the market structure and agricultural policies in five regional oilseed and oilseed product markets. 2. The Canadian oilseed and oilseed product market–description and policies. 3. The Japanese oilseed and oilseed product market–description and policies. 4. The European Community oilseed and oilseed product market–description and policies. 5. The U.S. oilseed and oilseed product market–description and policies. 6. The Brazilian oilseed and oilseed product market–description and policies. Bibliography. Address: Guelph, Ontario.

1277. **Product Name:** Soy-Pro (Meatless Sausage).
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2849 Dundas St. W., Toronto, ONT, M6P 1Y6, Canada.
**Date of Introduction:** 1980. November.
**Ingredients:** Soybean mash [okara], durum & whole wheat flours, vegetable oil, bran, water, honey, cider vinegar, blackstrap molasses, herbs, seasonings, lecithin, sea salt.
**Wt/Vol., Packaging, Price:** 350 gm plastic bag.
**How Stored:** Refrigerated.
**Nutrition:** Per 100 gm: Protein 7.2 gm, fat 1.6 gm, carbohydrates 19.9 gm, calories 203.
**New Product–Documentation:** Interview with Jon Cloud. 1985. Aug. Label sent by Jon Cloud. 1989. May. The product was introduced in the fall of 1980.

1278. Lowe, Marion. 1980. Miso–Another soy food. *Chimo (Canada).* Dec. p. 46-47.
• ***Summary:*** An introduction to miso, with two recipes (Mushroom Miso Sautee, and Miso Stew), based on *The Book of Miso* by Shurtleff & Aoyagi. A photo shows a 500 gm jar of Macro-Bio Soya Bean Puree / Puree de Feve de Soja (Miso), sold by Nu-Life Nutrition Ltd. in Vancouver, British Columbia, Canada.

1279. **Product Name:** [Macro-Bio Soya Bean Puree (Miso)].
**Foreign Name:** Macro-Bio Puree de Feve de Soja (Miso).
**Manufacturer's Name:** Nu-Life Nutrition, Ltd. (Importer). Made in Japan.
**Manufacturer's Address:** Vancouver, BC, Canada.
**Date of Introduction:** 1980. December.
**Wt/Vol., Packaging, Price:** 500 gm jar.
**New Product–Documentation:** Photo of jar and label in Chimo. 1980. Dec. p. 47. "Miso–Another soy food." At top of label: "Authentic Japanese Foods."

1280. *Soya Bluebook.*1980-1994. Serial/periodical. St. Louis, Missouri: American Soybean Assoc. Called Soybean Blue Book from 1947-1966; Soybean Digest Blue Book from 1967-1978; Soybean Digest Bluebook in 1979; Soya Bluebook from 1980 to 1994.

• ***Summary:*** A directory and information book (general and statistical) for the soybean production and processing. In 1987 the *Soya Bluebook* contained seven major sections: Organizations (incl. Associations), Soy Directory (Crushers, Soyfoods, Industrial Products), Soybean Manufacturing Support Industries, Marketing and Auxiliary Services, Soy Statistics, Glossary, Standards and Specifications. Well indexed, with color maps. In the early 1980s the Bluebook started to include many more foreign soyfood manufacturers.

The book contains many tables, including: "World Soybean Production," which gives area and production in specified countries (1974-1980). In 1980 this included: North America: Canada, Mexico, United States. South America: Argentina, Brazil, Bolivia, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay. Europe: Bulgaria, France, Hungary, Romania, Spain, Yugoslavia. Soviet Union. Africa: Egypt, Ethiopia, Nigeria, South Africa, Tanzania, Uganda, Zaire. Asia: Burma, China (Mainland), Taiwan, India, Indonesia, Iran, Japan, Kampuchea, Korea (north), Korea (South), Philippines, Thailand, Turkey, Vietnam. Oceania: Australia. World total.

In early 1988 the American Soybean Association sold the *Soya Bluebook* to Soyatech, owned by Peter Golbitz. His first print run was 8,800 copies. Yellow pages were added. In Dec. 1989 Soyatech announced that in 1988 estimated readership was 10,265 in 55 countries. 33.6% of the buyers were soybean processors / manufacturers, 28.7% were importers, exporters, transporters or marketers, 15.0% were suppliers of soybean processing or handling equipment and manufacturing support services, 9.9% were consultants, booksellers, or periodicals, 8.7% were organization or government agencies, and 4.1% were colleges, universities, libraries, and information centers. By region, 64.3% were sold in North America, 15.2% in Europe, 9.1% in Asia / Pacific / Oceania, and 9.1% in Latin America.

The 1991 Soya Bluebook appeared in Aug. with a new larger (8½ by 11-inch) format and 264 pages. The indexing system is more complete and the pages are tabbed for easy access to each section. The "reference" section was expanded by adding nutritional information on soyfoods, a new chart of soyfoods products, and soybean oil trading standards.

*Health Foods Business.* 1992. Nov. p. 218. *Soya Bluebook* now reports its circulation to be 3,000.

Talk with Joy Froding of Soyatech. 1995. Jan. 12. The 1994 print run of Soya Bluebook was 2,300 copies. An estimated 4 people read each copy.

Price of the Soya Bluebook (1 book sent to USA, Canada, or Mexico): 1992 = $28 (if paid before June 1; $38 afterward). 1993 = Same price. 1994 = $38 (no prepayment discount; Available July 1994; this book has fold-out indexing tabs and 272 pages. The order form announcing

the '94 Soya Bluebook states: "For 47 years Soya Bluebook has served as *the* noted information source for the world's soybean industry"). Starting in Jan. 1994 four issues of *Bluebook Update* are available free of charge to all who subscribe to or are listed in *Soya Bluebook.* 1995-96 = $38 ($48 after 1 June 1995; then in Nov. 1995 the price is raised to $58; incl. indexing tabs, 292 pages). This 1995-96 issue is titled "Soya Bluebook Plus: the annual directory of the world oilseed industry." Crops featured on the front cover are "soya, corn, cottonseed, palm, canola, rapeseed, and sunflower." Address: St. Louis, Missouri; Bar Harbor, Maine (After Jan. 1988).

1281. **Product Name:** Soya Flour, and Soya Flakes.
**Manufacturer's Name:** Kundesale Cereal Products Factory.
**Manufacturer's Address:** Kundesale, near Kandy, Sri Lanka.
**Date of Introduction:** 1980.
**Ingredients:** Soybeans.
**Wt/Vol., Packaging, Price:** Flour or flakes in 250 gm or 500 gm plastic bag. Flour retails for Rs 5/- or Rs 10/-. Flakes for Rs 6/50 or Rs 13/-. Bulk flour wholesales for Rs. 18/kg and the flakes for Rs. 22/kg.
**How Stored:** Shelf stable.
**Nutrition:** 38-39% protein.
**New Product–Documentation:** Form filled out by Jane Gleason. 1988. March. She noted that the Plenty Canada Soya Food Centre purchased soy flour and flakes from this company but did not give any information about the company itself. For details see Chocolate Milk (Aug. 1987). Second form. 21 April 1988 meeting with Mr. Udaya Alahakoon of 6 Ampitiyaya Rd., Kandy, whose family owns and manages the business. Their factory previously produced the Thriposha flour for CARE. The company now uses 5,000 kg/month of soybeans bought for Rs 9/kg one the wholesale market and from private sellers in Colombo.

The flour is sold primarily to one biscuit manufacturer (Maliban, 4,000 kg/month) and smaller quantities to 2 other soyfood producers. Plenty Canada is the only consumer outlet for the unblended soya flour. The other producer using Kundesale's flour is the Rice Processing Research and Development Centre (Paddy Marketing Board, 750 kg/month), which sells Soya Blended Rice Flour (see separate entry). Labels. 1987. 3.75 by 2 inches. Paper. Brown on light yellow/beige. In English and Sinhalese. "Soya Flour: For added nutrition, mix one part soya flour to 3 or 4 parts American flour or rice flour in your regular daily use."

"Soya Flakes: Precooked and easy to use. For a nutritious breakfast, add to tea, hot milk, porridge, kola kanda, etc. For extra protein, add to curry dishes, pol sambol, etc. To make paripoo, add flakes to sufficient boiling water and cook for 2-3 minutes. Add paripoo spices as needed." Flakes are marketed by Plenty Canada and by Spices and Essences, Colombo, with their label.

1282. **Product Name:** Soymilk.
**Manufacturer's Name:** Pyung Hwa Food Co. Inc.
**Manufacturer's Address:** 2139 Dundas St., Toronto, ONT, M6R 1X1, Canada. Phone: 416-534-0237.
**Date of Introduction:** 1980.
**Wt/Vol., Packaging, Price:** 600 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Jhasun Koo, owner and founder. 1989. May 4. He started making soymilk in 1980, but no longer makes it.

1283. Schmid, J.; Keller, E.R. 1980. The behavior of three cold-tolerant and a standard soybean variety in relation to the level and the duration of a cold stress. *Canadian J. of Plant Science* 18:351-74. *
Address: Swiss Federal Inst. of Technology, Dep. of Crop Science, ETH Zentrum, CH-8092 Zurich, Switzerland.

1284. **Product Name:** [Dried Flavored Tofu].
**Foreign Name:** Tofu Saveur Sec (Wu Hsiang Doufu Kan).
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada. Phone: 604-254-0701.
**Date of Introduction:** 1980.
**Ingredients:** Water, extract of soy, water, salt, calcium sulphate, soy sauce, egg color, monosodium glutamate, spices.
**Wt/Vol., Packaging, Price:** 250 gm (8.8 oz).
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 1987. 5 x 2 inches. Red on white. Form filled out by Peter Joe. 1988. May 20. Gives date. The term "dried" in the product name means that the tofu is pressed until it is very firm. It does not undergo a drying process.

1285. **Product Name:** Soy Tempeh.
**Manufacturer's Name:** Thistledown Soyfoods.
**Manufacturer's Address:** R.R. 5 (Church Rd. 5855), Duncan, BC, V0L 4T6, Canada. Phone: 604-748-9514.
**Date of Introduction:** 1980.
**New Product–Documentation:** Label. 1982, undated. 3.5 by 4 inches. Green and purple on white; Shurtleff & Aoyagi. 1982. Soyfoods Industry & Market. p. 48

Soyfoods Center Computerized Mailing List. 1982. July 23. Owners: Jean & Jan Norris. Address: R.R. 5 Church Rd. (5855), Duncan, BC, V9L 496, Canada. Shurtleff & Aoyagi. 1985. History of Tempeh. p. 60. Leviton. 1982. In a Small Bright Building.

1286. Tsukamoto, J.Y. 1980. 1979 Annual Technical Report. Manitoba Agriculture, Brandon, MAN R7A 1L9, Canada. 7

p. Unpublished manuscript.
• ***Summary:*** This is a report on "Project 202, Soybeans Production Demonstration. The objective of this project was to develop technology for and demonstrate the commercial production of soybeans. In 1979 the plan was to demonstrate the commercial production of soybeans utilizing all Maple Presto seed available for the project. Then the soybeans produced under the project were to be crushed to determine the commercial acceptance of the variety Maple Presto produced in Manitoba.

"The implementation of this project involved activities that were spread over a twelve-month period. They fell within four main areas: Production demonstration, field days, short courses and seminars, and crushing soybeans."

Six cooperators from various parts of Manitoba participated in the project; they followed recommended production practices from seeding to harvesting, then delivered their soybeans to the seed cleaning plant at Notre Dame. 800 kg of the soybeans produced were crushed at the P.O.S. Pilot Plant Corporation, Saskatoon, Saskatchewan. The author concludes that if there are not bad droughts or killer frosts, if weeds are controlled satisfactorily, and if normal rainfall occurs, a yield of 1,345 to 1,681 kg/ha (20 to 25 bu/acre) of Maple Presto appears realistic in commercial scale production. Address: Agro-Man Soybean Project Leader, Manitoba Dep. of Agriculture.

1287. Griffith, Garry Richard. 1980. An econometric simulation of alternative domestic and trade policies in the world markets for rapeseed, soybeans and their products. PhD thesis, University of Guelph, Canada. Page 6366 in volume 40/12-A of Dissertation Abstracts International. * Address: Univ. of Guelph, Canada.

1288. Maple Leaf Mills Ltd. 1980. Maple Leaf Mills: The company that grew with Canada. Toronto, Ontario. 22 p.
• ***Summary:*** The section titled "Maple Leaf Monarch Limited" (p. 12-13) states: "The corporate decision carrying the largest dollar tag ever in Maple Leaf Mills history was the vegetable oil processing complex at Windsor, Ontario.

"This huge, $50 million plant is the country's largest vegetable oil processing operation. It started up in 1979. The plant will supply more than a third of eastern Canada's vegetable oil and meal market. Jointly owned by Maple Leaf Mills and Lever Brothers Limited, it operates as a separate company, Maple Leaf Monarch Limited.

"Maple Leaf Mills had been in the vegetable oil business since the early years of World War II. The original refinery processing oilseeds, mainly soybeans, was located on Toronto's central waterfront.

"This facility, however, became obsolete for a number of reasons. Despite expansions, the overall capability of the plant to produce oil and meal volumes for the markets of the 1970s and 1980s was limited. As well, the long-term plans by several levels of government to revamp Toronto's waterfront meant the plant would ultimately have to be torn down.

"With the Windsor plant now in operation, Maple Leaf Mills and Lever Brothers share a partnership in one of the western world's largest and most modern vegetable oil refineries.

"Two main operations are carried out at this facility– seed crushing and oil processing. The seed-crushing operation processes about 450,000 metric tonnes of oilseeds annually, approximately 80 per cent of which are soybeans. The oil processing section produces about 50,000 tonnes of vegetable oils which are consumed in the production of margarine, shortening, salad and cooking oils. Technical oil products are used in the manufacture of paints, varnishes, printing inks and caulking compounds. The high protein meals produced are aimed primarily at the poultry and livestock feed markets of eastern Canada.

"Maple Leaf Monarch's Windsor plant represents a major market for Canadian soybean growers, located as it is in an area served by excellent transportation facilities to enable economic assembly of raw materials for processing." An aerial photo shows the "Maple Leaf Monarch vegetable oils plant at Windsor, Ontario, one of the world's largest."

A section titled "History Highlights" (p. 16-21) gives a chronology of the company from 1833 to 1980. 1904– Maple Leaf Flour Mills Company Limited incorporated under Dominion of Canada letters patent. The company soon begins acquiring other flour mills and elevators. 1908– Maple Leaf acquired Wheat City Flour Mill (in Brandon, Manitoba; founded 1901) 1910 April 5–Maple Leaf Milling Co. Ltd. formed to take over assets of Maple Leaf Flour Mills Co. Limited, with mills at Thorold, St. Catherines, Kenora, and Brandon, and grain elevators in Western Canada. Also Hedley Shaw Milling Co. (est. 1901, by acquiring Grantham Mill {St. Catharines, est. 1836} and Welland Mills {Thorold, est. 1848}). 1928–Toronto Elevators built elevator of 2 million bushels capacity at Queens Quay, Toronto. The company also purchased all 1,156 outstanding shares of Sarnia Elevator Co. Ltd.

1946–"Toronto Elevators started oil refinery at Queens Quay and began importation of food oils."

1956–"Toronto Elevators modernized Queens Quay feed plant and acquired a new elevator at Wallaceburg."

1961–"Amalgamation of Toronto Elevators Limited, Maple Leaf Milling Company Limited, and Purity Flour Mills Limited. Maple Leaf Mills Limited was the emerging company."

1972–"Federal Government expropriated the Queens Quay complex for future redevelopment of Toronto harbor lands." 1975–"Maple Leaf Mills and Lever Bros. commenced a joint venture, construction of a major vegetable oil plant at Windsor, Ontario." Note: This is the first mention of Lever Bros. in this chronology. 1976–

”Norin Corp., of Florida, acquired 74% of the common stock of Maple Leaf Mills.” 1979–”Norin Corp. acquired all outstanding common shares of Maple Leaf Mills.”

1980 “Canadian Pacific Enterprises Limited, of Montreal, acquired all common shares of Maple Leaf Mills as a result of purchase of Norin Corp.”

On page 22 is a historical listing of the presidents of Maple Leaf companies, with their dates of office. Address: Toronto, Ontario, Canada.

1289. Mogi, Koya. 1980. Recent progress of soy sauce manufacturing in Japan. In: Proceedings of the Oriental Fermented Foods. Food Industry Research and Development Institute, P.O. Box 246, Hsinchu, (300) Taiwan. iv + 229 p. See p. 88-101. Held 10-14 Dec. 1979 in Taipei, Taiwan. 13 tables. 6 figs. [2 ref]

• ***Summary:*** Contents: Introduction. Manufacture: Treatment of raw materials, koji making, aging, pressing, refining. High temperature and short time cooking method. The following tables are included: 1. Classification of shoyu (5 kinds, 3 grades, 3 production methods). 2. Some characteristics of different kinds of shoyu (kinds, color, soybean:wheat ratio). 3. Typical composition of 5 different kinds of shoyu. 4. Differences in koikuchi shoyu grades (total nitrogen, soluble solids except NaCl, alcohol). 5. Differences in shoyu production methods (hon-jozo, shinshiki, amino acids liquid mix). 6. Shoyu production of different kinds in 1977 (koikuchi 917,738 kl = 85% of total, usukuchi 124,829 kl = 11.6% of total, tamari 23,437 kl = 2.2% of total, shiro 4,456 kl = 0.4% of total, saishikomi 3,072 = 0.3% of total). 7. Shoyu production in different grades in 1977 (special 59.3% of total, upper 27.5%, standard 13.2%). 8. Shoyu production by different methods in 1977 (hon-jozo 66.9% of total, shinshiki-jozo 28.4%, amino acids liquid mix 4.7%).

The innovation of treating soybeans using the high temperature and short time cooking method increased the yield of shoyu very much and was patented in Japan, the USA, and Canada. The protein in raw soybeans is undenatured and cannot be hydrolyzed (digested) by the enzymes of koji molds. Therefore it is necessary to denature the soybean protein by cooking so that it can be hydrolyzed. “The phenomenon of the so-called ‘N-property’ (turbidity nature) appears, if portions of soybean protein remain undenatured. ‘N-property’ is the phenomenon that *shoyu* becomes turbid when it is diluted and heated. This is the appearance of insoluble form of undenatured protein and remarkably diminishes the commercial value of *shoyu*.

“Undenatured protein is soluble in water, especially saline water, and goes into the product. If the product contains undenatured protein, ‘N-property’ described above appears as a coagulant when *shoyu* is diluted to the concentration fitted to the specified cuisine and/or further heated. However, excess denaturation also makes soybean protein undecomposable by proteolytic enzymes. Thus, over-denaturation results in a decrease of the yield of *shoyu* and an increase of the production cost.

“Steam cooking has been used as a means to increase digestibility of soybean protein. Technical know-how of so-called ‘NK-method’ developed by Mr. Tateno *et al.* of the author’s company in 1952 has been generally used by many soy sauce manufacturers. It was an epoch-making method of soybean treatment in *shoyu* making. Before that time, the utilization rate of nitrogen was about 66 to 70%. A utilization rate of nitrogen is defined as a percentage of soluble nitrogen in *moromi* mash to total nitrogen in the raw materials used. In this method, soybeans are cooled rapidly after cooking to prevent excess denaturation. Soybeans are steamed at 0.9 to 1 kilogram per square centimeter gauge pressure for 30 to 60 minutes (average 45 minutes) and then cooled as soon as possible with the aid of jet condenser to reduce the pressure inside the cooker. Thus, the utilization rate of nitrogen attained by the ‘NK-method’ is 81 to 82%. After many years, the ‘NK-method’ was first replaced with ‘high temperature and short time cooking method’ in about 1970.

“It has long been believed that the treatment of the ‘NK-method’ is best with steam at 0.9 kilograms per square centimeter for 30 to 60 minutes and that either higher temperature or longer time causes excess denaturation and decrease of the utilization rate of nitrogen. However, the author’s results of bench-scale experiments indicate better digestibility of soybeans when the conditions of higher temperature and shorter time are used for denaturation of protein.”

Note: This is the earliest document seen that mentions *saishikomi* shoyu. Address: Kikkoman Shoyu Co., Ltd., Plant No. 7, 339 Noda, Noda-shi, Chiba-ken, Japan.

1290. Ontario. Ministry of Agriculture and Food. 1980. Soybeans and land management. Toronto, Ontario, Canada. 45 p. Southwestern Ontario Farmers’ Week at Ridgetown College of Agricultural Technology. Held Monday Jan. 14, 1980.

• ***Summary:*** Contents: Feature address: Agricultural practices and water quality, by Karen Switzer Howe. Soybean production: Soybean inoculation and micronutrient materials, by J.C. Schleihauf. Soybean varieties for 1980, by Dr. R.I. Buzzell. Variable effects of soybean herbicides, by C.J. Swanton. Molds, mildews and mites, by R.E. Pitblado. Soybean marketing: Ontario soybean insurance program, by H. Ediger. Stabilization and advance payment for soybeans, by A.E. Proulx. Land Management: Tillage, by Dr. T.B. Daynard. Crop rotation, by Dr. C.S. Baldwin. Liming, by R.W. Johnston. Soil structure, by C.K. Stevenson. Windbreaks can increase crop yields, by D.C. Craig. Ditchbanks and grassed waterways, by J.B. Arnold. Municipal drains–who is responsible?, by D.L. Rogerson.

The Ontario Farm Productivity Incentive Program, by G.A. Driver. Address: Canada.

1291. Spence, M.; Davignon, J.; Holub, B.; Little, J.A.; McDonald, B.E. 1980. Report of the Ad Hoc Committee on the Composition of Special Margarines. Minister of Supply and Services Canada. Cat. No. H44-46/1980-E. 70 p. [175* ref]
• ***Summary:*** This report was apparently presented in Ottawa on 5-7 Dec. 1979 and published in 1980. Contents: Recommendations. Summary. Committee membership. Expert witnesses. Report: Glossary, introduction, questions addressed by the committee, the need for special margarines with declared fatty acid characteristics, *trans* fatty acids–metabolism and biological effects (studies with *in vitro* systems, animals, and human subjects), the relative importance of linoleic and linolenic acid in the diet. References. Address: Ottawa, Canada.

1292. Zavitz, James R. 1980. The Religious Society of Friends (Quakers). *Families* 19(1):2-6. *

1293. *Soybean Review (Winnipeg, Manitoba, Canada).*1980—. Serial/periodical. Richardson Securities of Canada. Frequency: Annual.
• ***Summary:*** Continued by Soybean Update (Winnipeg). Address: Canada.

1294. Tsukamoto, J.Y. 1980? Some information about soybeans in the Prairie Provinces. Paper presented. 7 p. Undated. Unpublished manuscript.
• ***Summary:*** Gives a detailed discussion of soybean variety development work in the Prairie Provinces in Canada: Manitoba, Saskatchewan, and Alberta. "Soybean production in the prairies is not a new venture. Particularly in the province of Manitoba, there have been earlier attempts to produce soybeans. Furthermore, soybean varieties, such as Altona and Portage, were developed by the University of Manitoba. Because of management problems and low returns, however, commercial production of soybeans did not flourish in Manitoba. By the early 1970's, it had dwindled to production by only a few seed growers. Finally, seed production also ceased as growers realized that the production of other seed required less management and fewer risks and that the returns from other crops were more attractive.

"In Manitoba, with an early maturing variety developing, interest in soybean production was revived, first on the part of researchers who were associated with this development. Three years ago, with the assistance of Dr. R. Hamilton (Agriculture Canada, Brandon), the Prairie Bean Growers Association undertook a small scale soybean production program. This was done with the aid of New Crop Development funds made available from Agriculture Canada. The program continued up to 1979 with varying measures of success. The variety Portage was used with narrow row spacing. Difficulty was experienced due to the short growing season in the project area, combined with excessive nitrogen in the soil. In some cases, there was difficulty in controlling weeds...

"Although it was done only in 1977, Pride Seed Company had 17 test sites, located from Teulon, Manitoba, to Yorkton, Saskatchewan, where the adaptation of soybeans was studied along with that of corn and sorghum varieties. This study also experienced varying degrees of success...

"In 1979, under Manitoba's value added crop development plan known as the Agro-Man Program, a commercial-scale soybean production demonstration was initiated. Six farmer cooperators, located from Niverville to Melita, were involved...

"The plan originally was to crush all of the soybeans produced under the program at C.S.P. Food Ltd., Altona, in order to determine commercial acceptance of an early line of soybeans (Maple Presto). Crushing requires a minimum of 5000 bushels which was not produced in 1979. In order to obtain some crushing information, a composite sample of 800 kg was crushed at P.O.S. Pilot Plant Corporation in Saskatoon. The results of crushing were satisfactory."

The three main varieties tested were Maple Presto, Portage, and McCall.

In Saskatchewan, Dr. Albert Slinkard at the Univ. of Saskatchewan has been the only person involved in soybean work. He conducted Dr. H. Voldeng's series 1000 soybean yield test at Saskatoon from 1977 to 1979. In Alberta, 12 growers were involved in the production of about 40 ha of King Grain line X005 and 20 ha for Maple Presto for seed multiplication in 1979. Yields of 2,156 kg/ha were considered good and one farmer on 6 ha achieved 2,706 kg/ha. In Alberta, numerous scientists at Lethbridge (incl. breeder Dr. H. Muendel) and Mr. R. Park at Lacombe and Dr. J.E. Andrews are conducting soybean research.

"In conclusion, it must be stated that sound weed control practices are of the utmost importance in the production of soybeans in all regions of the prairie provinces. It goes without saying that continued varietal improvement and studies of other phases of soybean production are necessary.

"Canada continues to import soybean oil, meal, and soybeans for crushing. Obviously, there is a domestic market for soybeans. Also there is an opportunity for exports. An effective marketing system is necessary if the prairie provinces are to realize the great potential in soybean production." Address: Agro-Man Soybean Project Leader, Manitoba Dep. of Agriculture, Canada.

1295. **Product Name:** [Tofu].
**Foreign Name:** Tofu.

**Manufacturer's Name:** Soy-Can Dairy Ltd.
**Manufacturer's Address:** 59 St. James St. W #601, Montreal, QUE, Canada.
**Date of Introduction:** 1981. January.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1981. Jan. 22. Owner and phone not listed.

1296. **Product Name:** Tofu.
**Manufacturer's Name:** Thistle Down Tofu.
**Manufacturer's Address:** R.R. 5 Church Rd., Duncan, BC, V9L 4T6, Canada. Phone: 604-748-9514.
**Date of Introduction:** 1981. January.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1981. Jan. 22. Owner: Jan Norris.

1297. **Product Name:** Tempeh.
**Manufacturer's Name:** Toronto Tempeh Shop.
**Manufacturer's Address:** 324 Apache Trail, Willowdale, ONT, M2H 2W5 Canada. Phone: 416-491-2328.
**Date of Introduction:** 1981. January.
**New Product–Documentation:** Letter/Order for *The Book of Tempeh* from Tjeng G. Tan, 324 Apache Trail, Willowdale, ONT, Canada M2H 2W5. 1979. Dec. 11.
Soyfoods Center Computerized Mailing List. 1981. Jan. 22. Owner: Mr. Tjeng Giok Tan.

1298. Jung, R. 1981. Measuring soybean harvesting losses. *Ontario Ministry of Agriculture and Food, Factsheet* No. 81-018. 4 p. Feb. AGDEX 141/745. Revision of March 1973 Factsheet with same title.
• ***Summary:*** This concerns losses using a combine harvester. Contents: Introduction. Preharvest loss. Shatter loss. Stubble loss. Lodged and loose stalk loss. Cylinder loss. Separation loss. How to measure harvest losses. Address: Engineering section, Ridgetown College of Agricultural Technology, Ridgetown, ONT, Canada.

1299. Leviton, Richard. 1981. Making soymilk in America. *Soyfoods* 1(4):16-24. Winter.
• ***Summary:*** A review of soymilks available nationwide and a detailed analysis of Numu, New England Soy Dairy's problematic soymilk and the reasons for its failure in September 1980, at a cost of $40,000. Also discusses: Vitasoy (imported to California). President Soybean Drink (imported to California). Soy Fresh (made by Quong Hop in California since 1972). Soy Moo (made by Health Valley in California). Fresh Soybean Juice (made by Wy Ky of Los Angeles). Soymilk (made by Mighty Soy). Soybean Beverage (made by Hoven Foods, Seattle). Soy Juice (made by Redwood Valley Soyfoods Unlimited [Richard Rose]). Plain Soymilk (made by Island Spring, Vashon, Washington). Nutrisoya (made by Victor Food Products, Toronto, Canada). Soy-Ya! (made by Joy of Soy, Minneapolis, Minnesota). Soy Milk (made by White Wave of Boulder, Colorado). Soyalac and Soyagen (made by Loma Linda of Mt. Vernon, Ohio). In 1978 Nasoya introduced Vidasoy–prematurely; it was a disaster. A photo shows Stephen Yu holding a bottle of Victor Foods' Nutrisoya. Address: Colrain, Massachusetts.

1300. Leviton, Richard. 1981. Putting tofu in the lunch boxes of America: A report on serious soyfoods marketing. *Soyfoods* 1(4):54-61. Winter.
• ***Summary:*** About New England Soy Dairy, Timothy Metzger and Dannon Yogurt, Larry Needleman and Bean Machines, Thelma Dalman (Food Service Director for Santa Cruz city school system), Al Jacobson (The Wizard of Foods, "a tidy, bustling, elfin, walking idea man") and his Garden of Eatin', Paul Duchesne and Wildwood Natural Foods, Steve Demos and White Wave. A photo shows Victor Food Products on sale in Canada: VFP Tofu, and VFP Nutrisoya soymilk.

A sidebar by Timothy Metzger, gives an interesting history of marketing dairy yogurt in America. Dannon introduced its yogurt to the U.S. some 38 years ago (i.e. about 1943). Concerning Wildwood (p. 61): "In Fairfax, just over the hills from the Golden Gate Bridge and San Francisco, Paul Duchesne's Wildwood Natural Foods appears to fulfill the dreams of many soyfoods proprietors by combining both light tofu manufacture with light sandwich production in a clean, efficient, and industrious little shop. Mr. Duchesne designed his shop as a tofu showcase with broad wall-to-wall front windows so that passers-by may glimpse tofu production during the days. Wildwood produces a line of eight packaged vegetarian sandwiches including *Brown Rice and Tofu Sandwich* (with vegetables in a whole wheat bun), *Tofu Vegetable Salad, Two Beans in a Bun, Carrot-Raisin Salad, Marinated Bean Salad,* and *Beet Salad.* While they enjoy the luxury of a delivery van for San Francisco accounts, Mr. Duchesne impressed upon me the fun of using a bicycle that pulls a small flat trailer for on-the-street sales in Fairfax on those endless California summer days when folks are out relaxing on their skateboards and zipping down the street on roller skates and sailboats crisscross Sausalito Bay." Address: Colrain, Massachusetts.

1301. MacLeod, J.A.; Sterling, J.D.E. 1981. Soybean technology transfer. *Research Station Charlottetown, P.E.I., Research Summary* For the year 1980. See p. 106. (Agriculture Canada Research Branch).
• ***Summary:*** "In 1979 a technology transfer program was initiated to evaluate the feasibility of producing soybeans on Prince Edward Island. Past attempts at soybean production were unsuccessful because early maturing varieties were not available. Maple Presto, from the Ottawa soybean breeding

program, was a significant step in the development of earlier maturity and evaluation of its potential under Prince Edward Island conditions is under investigation." In 1980 six growers from Prince Edward Island grew Maple Presto soybeans. The highest yield, 1,456.2 kg/ha, was obtained by D. Ling in North Winsloe. He planted the soybeans on May 26 and harvested them (containing 16.0% moisture) on Oct. 29. Address: Prince Edward Island, Canada.

1302. Tsukamoto, J.Y. 1981. 1980 soybean activities in the Prairie Provinces. Paper presented at the 36th Annual Meeting of the Expert Committee on Grain Breeding (ECGB). 15 p. Held 16-17 Feb. 1981 at Edmonton, Alberta, Canada.
• ***Summary:*** The Prairie Provinces are Manitoba, Saskatchewan, and Alberta. This paper consists of 3 parts. Part 1 (p. 1-6, incl. Appendix I) is the basic presentation by Joe Tsukamoto, which focuses on developments in Manitoba. Approximately 7,000 bu of Maple Presto were harvested from a demonstration project and crushed at C.S.P. Foods in Altona to determine the commercial acceptance of this variety.

Part 2 (Appendix II, p. 7-14) is titled "The development of new short-season soybean varieties," by H.D. Voldeng of Agriculture Canada, Ottawa. "There are four characteristics that are of special concern to the plant breeder when he evaluates the potential of a promising new strain: yield, maturity, oil content and protein content. Growers are particularly interested in yield and maturity, whereas industry is concerned with oil and protein levels... In general higher yields are produced by later maturing cultivars." According to table 1, the variety that matures in the shortest time, Maple Presto, requires only 101 days in Manitoba, and gives a yield of 1,980 kg/ha.

Part 3 (Appendix III, p. 15) is titled "Report on soybeans in Southern Alberta, 1980," by Hans-Henning Muendel of Agriculture Canada Research Station, Lethbridge, Alberta T1J 4B1, Canada. It discusses commercial trials (including tests of small-seeded "natto" types), agronomic and physiological studies, and varietal testing and breeding. Address: Manitoba Agriculture.

1303. **Product Name:** VFP Tempeh.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1981. February.
**New Product–Documentation:** Ad in Chimo. 1981. Feb. p. 15.

1304. **Product Name:** VFP Soya Yogurt.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1981. February.
**New Product–Documentation:** Ad in Chimo. 1981. Feb. p. 15.

1305. **Product Name:** VFP Soya Cookies.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1981. February.
**New Product–Documentation:** Ad in Chimo. 1981. Feb. p. 15.

1306. **Product Name:** VFP Soya Muffins.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1981. February.
**New Product–Documentation:** Ad in Chimo. 1981. Feb. p. 15.

1307. **Product Name:** VFP Soya-Banana Cake.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1981. February.
**New Product–Documentation:** Ad in Chimo. 1981. Feb. p. 15.

1308. **Product Name:** VFP Miso.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1981. February.
**New Product–Documentation:** Ad in Chimo. 1981. Feb. p. 15.

1309. Barry, Ann. 1981. Flour: Which type to use for what. *Chicago Tribune.* March 26. p. W_A2 (or S_A2 or N_B2).
• ***Summary:*** The small section titled "Other flour" states: "Gluten flour has practically all starch removed... Other diet flours include potato starch, soybean, oat flour, rice flour, and corn flour. Some brands of diet flours are Cellu Goods, Golden Harvest, and Fearn Soya Foods, available in Chicago health food stores."

The last section, "Where to get natural flours," begins: "Stone-ground flour is milled the old-fashioned way, by stone rollers, which are often propelled by water power." Best to keep refrigerated: The name and address of the following sources is given: Arrowhead Mills (Hereford, Texas), El Molino Mills (City of Industry, California). Erewhon Trading Co. (Cambridge, Massachusetts), Grain Process Enterprises Ltd. (Scarborough, Ontario, Canada), Great Valley Mills (Bucks County, Pennsylvania), Shiloh Farms (Sulphur Springs, Arkansas), Vermont County Store

(Weston, Vermont), and Walnut Acres (Penns Creek, Pennsylvania). Address: Chicago.

1310. Carroll, K.K. 1981. Soya protein and atherosclerosis. *J. of the American Oil Chemists' Soc.* 58(3):416-19. March. [38 ref]
Address: Dep. of Biochemistry, Univ. of Western Ontario, London, ONT, Canada.

1311. Jenkins, David J.A.; Wolever, T.M.S.; Taylor, R.H.; et al. 1981. The glycemic index of foods: a physiological basis for carbohydrate exchange. *American J. of Clinical Nutrition* 34(3):362-66. March. [12 ref]
• ***Summary:*** To determine the effect of different foods on blood glucose, 62 commonly eaten foods (including cooked soya beans and canned soya beans) and sugars were fed individually to groups of 5-10 healthy fasting volunteers. Blood glucose levels were monitored. The glycemic index is the area under the blood glucose response curve for each food expressed as a percentage of the area after taking the same amount of carbohydrate as glucose. The glycemic index for cooked soya beans was 15 ± 5 and for canned/ tinned soya beans was 14 ± 2. These figures were quite small compared with vegetables (70 ± 5%), breakfast cereals (65 ± 5%), or cereals and biscuits (60 ± 3%), or fruit (50 ± 5%).

Note 1. The glycemic index is a measure of how quickly foods convert to glucose in the human bloodstream. Thus it rates foods according to how much and how fast they raise blood sugar after eating. It can be used to distinguish good carbohydrates (convert slowly) from bad.

Note 2. This is the earliest English-language document seen (June 2007) that contains the term "glycemic index."
Address: 1. Dep. of Nutrition and Food Science, Univ. of Toronto, 150 College St., Toronto, ONT M5S 1A8 Canada.

1312. McDonnell, Kathleen. 1981. From fodder to fast food: Soybeans crop up more than ever on farms and in stores. *Maclean's (Canada).* March.
• ***Summary:*** Recently soybean breeders have created early-maturing varieties which are enabling soybeans to spread northward "beyond their traditional growing area in extreme southern Ontario, which now produces more than 90 per cent of Canada's total harvest." This year substantial acreage will be seeded in Alberta, Manitoba, P.U.I. [Prince Edward Island], Quebec and eastern Ontario.

"With last year's harvest of 26.2 million bushels worth more than $200 million, Canada has now moved into fifth place among world soybean producers–after the U.S., Brazil, China, and Argentina.

Human consumption of soybeans is definitely catching on in Canada. At one health food store in Vancouver, BC, the most popular item is tofu, or soybean curd, which is now "being touted as the 'yogurt of the '80s.' Packaged tofu is now being sold in major supermarket chains across the country..."

The largest consumers of soy products by far are vegetarians. Elsie Sokol, chief dietitian at Toronto's Branson Hospital (run by Seventh-Day Adventists) "receives 'thousands' of requests from across the country for information about soybeans and gives lectures on their nutritional value and preparation." She believes the day will come when people in general will praise soybean growers. Mary Anderson, who shares her enthusiasm, is one of three partners who run a soy-food restaurant named Soja in Kensington Market. A photo shows Mary, with a tray of soy cheesecake and burgers, in front of her restaurant's sign.

1313. Soycrafters Assoc. of North America; Soyfoods Center. 1981. Estimated soyfoods industry statistics (News release). Sunrise Farm, Heath Rd., Colrain, MA 01340. 1 p. March. Updated in Aug. 1981.
• ***Summary:*** 1. Number of companies manufacturing tofu, tempeh, miso, soynuts, soy sprouts, soy sauce, secondary soyfoods, soy delis & restaurants, in the USA, Canada, and Latin America. 2. Production statistics for USA and Canada: Raw soybean usage, food production, employees, and retail sales value are given for 4 types of tofu makers (caldron, steam kettle, pressure cooker, factory), tempeh, soynuts, and soy delis and restaurants. With totals. Actual gathering of statistics was done largely by Soyfoods Center. Address: 1. Richard Leviton, Colrain, Massachusetts; 2. W. Shurtleff, Lafayette, California.

1314. Tape, Norm W. 1981. Status on development of Codex Alimentarius standards for vegetable proteins. *J. of the American Oil Chemists' Soc.* 58(3):439-40. March.
Address: Agriculture Canada, Ottawa, ONT, Canada.

1315. Soyateria (The). 1981. April. New soyfoods restaurant or deli. 2847 Dundas St. West, Toronto, ONT, M6P 1Y6, Canada.
• ***Summary:*** Leaflet. 1981. "Soy City Foods announces the grand opening of the soyateria, soyfoods specialty shop... We specialize in fast, tasty, all natural soyfoods to take out. You may cal your order ahead of time. 762-1257. Open Monday to Saturday–11:30 a.m. to 7:00 p.m." Also a menu.

Questionnaire filled out by owner of restaurant or deli. 1982. Lists the company's most popular soy-based menu items in descending order of popularity. The highest weekly total sales over the past 6-2 months, the month that this occurred, and why. The average weekly sales during this period. Average hourly wages paid to workers. The business startup cost (amount of money it cost to get the business started). Current profitability status. Plans for the future. Advice the owner would give to someone starting a similar business.

Shurtleff & Aoyagi. 1982. Report on Soyfoods Delis, Cafes & Restaurants. p. 3. Started in April 1981 by Jon Cloud as part of Soy City Foods. Address: Toronto, ONT, Canada. Phone: 416-762-1257.

1316. Soyfoods Center; Soycrafters Assoc. of North America. 1981. Soyfoods Production in America and the West (News release). Lafayette, California: New-Age Foods Study Center. 1 p. April. Updated in Sept. 1981 in a neater format.
• ***Summary:*** A table shows production statistics for 25 types of soyfoods. Number of manufacturers in the USA, Canada, Other West, Total; Tons of raw soybeans/year used by each food. Yield of food from 1 unit weight of soybeans. Wholesale value. Retail value. Number of people employed. Address: P.O. Box 234, Lafayette, California 94549.

1317. Shurtleff, William. 1981. Analysis of the U.S. and Western world tofu industry. Lafayette, California: Soyfoods Center. 1 p. May 17. Unpublished typescript.
• ***Summary:*** In this 1-page summary, prepared for Kikkoman Corporation, a table gives the following statistics for the years 1979, 1980, and 1981: Number of tofu manufacturers in the USA (120, 145, 159), Canada (7, 14, 19), other non-Asia, total. Raw soybeans used (tons/year) in USA. Percentage of total raw soybeans used for all soyfoods in the USA. Yield (pounds of tofu made from 1 pound of soybeans) (2.5). Tons of tofu produced in USA (16,250, 20,500, 26,000). Wholesale value (million dollars) (12.0, 17.5, 25.0). Retail value (million dollars) (23.2, 33.9, 48.5). Number of production employees (602, 759, 965).

Notes: The largest food uses of soybeans in the USA in 1981 are: Soy flour and grits (defatted) 52.6% (of all soybeans used), textured soy flour (incl. TVP) 19.7%, soy protein isolates 16.9%, soy protein concentrates 7.7%, soy sauce 1.2%, tofu 0.8%, soymilk and dairylike products 0.6%.

Estimates of regional markets for tofu: Largest market–California. Second largest–East Coast from Massachusetts to Maryland. Third largest–Pacific Northwest. Fourth largest–Northern Midwest (Wisconsin, Michigan, Illinois, Minnesota, Indiana).

Addresses of tofu manufacturers is included. Address: The Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

1318. Benisch, Reginald. 1981. Soja in Oesterreich: Der zaehe Kampf gegen den Wolf [Soybeans in Austria: The tough struggle against (Mr.) Wolf]. *Trend (Austria)*. May. p. 176-81. No. 5. [Ger]
• ***Summary:*** When Dipl. Engineer Anton Wolf first planted Soviet and Canadian soybean seeds in Austria in 1975, he was prepared for an intense but vehement battle against rural ignorance. But the 52 year old researcher (of climate and plants at the Central Bureau for Meteorology and Geodynamics in Vienna-Döbling) wanted to prove that soybeans in Austria were not a botanical insanity. According to agronomists, soybeans only do well in places like the USA and Brazil. In 1978 Wolf's project to acclimatize soybeans to Austria first started to show success, with yields comparable to those obtained in the USA. Quickly the American soybean lobby entered the picture in order to protect the monopoly of a handful of U.S. firms. A group of emissaries flew to Vienna to try to stop the agronomic trials. They registered a quick partial success. The Austrian Minister of Trade took seriously their threat to hinder imports of Austrian cheese to America, and let the project of an Austrian oil mill lie dormant. But Wolf expanded his trials and was soon getting yields of 3,500 kg/ha. The Soya Circle *(Sojaring)*, a 2-year old association of farmers testing soybeans, was made solid by the threat. People were considering starting an oil mill in Austria but didn't for lack of hope in good oilseed yields.

Josef Rickl, a miller from Grosschweinbarth in Weinviertel, has been also been a soybean farmer for 3 years. He would like to make a micronized whole soy flour at the Wolkersdorfer Suesswarenfabrik Candita for use in confections. Austria presently imports 97% of her protein and fat. "In Austria, soya is really no novelty. Since the late 1800s the beans were planted with great success in the territory of the present republic, with yields of 2,000 kg/ha. Austria exported seeds to the Near East and North Africa. In the 1940s a soya cookbook was published. In 1945 soybeans suddenly disappeared from Austrian fields, supposedly at the instigation of the American occupation forces. Soy became forgotten and the adapted varieties were lost forever.

"Soy cultivation tests show that the wonderplant grows very well here. In spite of that, it seems that the plan to enrich agriculture through the regular planting of a protein rich bean and to balance trade, for clear reasons, is withering in the official drawer."

A photo shows a folded Herald Tribune, three golden bullets on one side, and an uprooted soybean plant on the other. Wolf's address is Wallriss Strasse 45/3/6, A-1180 Wien, Austria.

1319. **Product Name:** Frozen Buddha (Soymilk Ice Cream) [Chocolate Mint, Pineapple Coconut, Lemon Coffee, Chocolate Almond, Lime Ginger, Carob, Blueberry, Maple Walnut, Vanilla, Apricot, or Holiday Spice Eggnog].
**Manufacturer's Name:** Metta Tofu Products.
**Manufacturer's Address:** Wren Rd., Denman Island, BC, V0R 1T0, Canada.
**Date of Introduction:** 1981. May.
**How Stored:** Frozen.
**New Product–Documentation:** Letter from Lulu Yoshihara of Denman Island, BC, Canada. 1981. Sept. 9.

Last spring, her neighbor Ray Lipovsky, “the tofu man,” started making Frozen Buddha, “a soy ice cream, which is very, very popular (because it is very, very delicious). I’ll enclose the lid with this letter...”

Label. 1982. Undated. Spot in Soyfoods. 1983. Winter. p. 49-50. “How to Freeze the Buddha.” Monthly production of 1,500 liters in the winter.

1320. Shurtleff, William; Aoyagi, Akiko. 1981. History of world soybean production and trade. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 39 p. June 20. Unpublished typescript.
• ***Summary:*** A comprehensive history of the subject. Contents: Introduction. Part I: Six phases of world production and trade. All in East Asia. Expansion of soybean exports from Manchuria to the West. Rise of soybean production in the U.S. and decline of exports to Europe. Domination of the U.S. as the world’s largest producer. Leadership of the West over Asia and rise of the U.S. as major exporter. Rise of Latin America. Part II: Asia. China. Manchuria. Other Asia. Part III: United States and Canada. Part IV: Latin America. Brazil. Argentina. Part V: Europe and the USSR. Part VI: New Third World countries. Address: Lafayette, California. Phone: 415-283-2991.

1321. Shurtleff, William; Aoyagi, Akiko. 1981. History of fermented soymilk and its products. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 19 p. June 28. Unpublished typescript.
• ***Summary:*** A comprehensive history of the subject. Contents: Introduction: Relatively recent, advantages of fermentation. History of acidophilus soymilk from Li Yu-ying and Beltzer (1910-1912). History of investigations on the growth of lactic acid bacteria in soymilk from Gehrke and Weiser (1947). History of soymilk yogurt. History of fermented soymilk cheeses. History of soymilk piima and viili. History of soymilk kefir, kumiss, and buttermilk. Address: Lafayette, California. Phone: 415-283-2991.

1322. Renaissance Café. 1981. Easy (Ad). *Toronto Star (Ontario, Canada).* June 30. p. B11. Advertising supplement.
• ***Summary:*** “Easy to eat salads, hot soups, chilies, curries, special entrees, all kinds of cakes and baked stuff. Easy prices and easy to find, Bloor St. two blcks of east of Bathurst.” Address: 509 Bloor St. W., Toronto, Ontario. Phone: 958-6639.

1323. Soy City Foods. 1981. Wholesalers of Tofu and other Soy Products (Ad). *Toronto Star (Ontario, Canada).* June 30. p. B13. Advertising supplement.
• ***Summary:*** “Soyateria–Soyfoods Specialty Shop. Try our fast, tasty, all natural soyfoods–to take out.” Address: 2847 Dundas Street West, just east of Keele St. [Toronto]. Phone: 762-1257.

1324. *Toronto Star (Ontario, Canada).*1981. Meals are meatless for many families (Advertorial). June 30. p. B13. Advertising supplement.
• ***Summary:*** “There’s a quiet revolution shaping up on your dinner table.

“Many families are eating meat analogue (meat substitute to you and me). Long acclaimed by many vegetarians and members of the Seventh-Day Adventist church, the meat analogue looks and tastes about as much like meat as margarine resembles butter, and that’s close enough for many.

“Some are frozen and ready to serve, some come in sealed tins and complete a recipe, others in packages, dehydrated so that you can slip them into your knapsack when you aren’t making stews and casseroles at home. Names like Vegetarian Burger, Sizzleburgers, Prosage Links and Big Franks abound, not to mention Vegetarian Stakelets, Stripples (like bacon). You name your favorite meat, fowl, or fish and manufacturers such as Loma Linda Foods or Worthington Foods will probably be able to offer a reasonable facsimile.

“The soybean has been a staple of the oriental diet for hundreds, if not thousands of years. It is a complete protein, and enthusiasts are quick to note the absence of cholesterol and animal fat content. Add wheat gluten to capture the ‘mouth feel’ of flesh food, peanuts for the taste and fibrous texture, a bit of seasoning here and there, extrude the whole, cook to taste, and voila, the meat analogue!

“Soybean drink [soymilk] is another entrant in the huge North American beverage sweepstakes. With its white colour and nut-like flavour, it offers an alternative to milk for drinking and cooking.”

1325. *Toronto Star (Ontario, Canada).*1981. New miracle food is protein rich Tofu (Advertorial). June 30. p. B13. Advertising supplement.
• ***Summary:*** A large advertorial in praise of tofu. An illustration shows a cake of tofu on a white plate.

“Just what is this tofu everyone is talking about?

“Tofu (pronounced TOE-fu) is a rich source of protein that can serve as the backbone of any diet–replacing or alternating with meat and dairy products. It originated in East Asia several millennia ago... In the West, it is known as soybean curd.”

“Tofu has a white cheese-like consistency made from soybean curds just as cheese is made from dairy curds. Unlike cheese, Tofu is not fermented, aged and ripened.”

1326. *Toronto Star (Ontario, Canada).*1981. Many foods promote health (Advertorial). June 30. p. B11. Advertising supplement.

• ***Summary:*** "The subject of health foods opens a wide and complex canvas." What are they? Are they the same as "natural foods" and "pure foods"? Are they all organic?

"'Health foods are,' as Barbara Towns, manager of Soyateria Delicatessen in Toronto explains, 'anything that enhances the body. Anything that prmotes health instead of disease.'"

"Tofu is a health food staple. It is a soybean curd which looks like a block of cheese. It is high in protein..."

1327. Vegetarian Restaurant (The) (Ad). 1981. Healthy food that tastes terrific! (and at a great price too.) (Ad). *Toronto Star (Ontario, Canada).* June 30. p. B11. Advertising supplement.
• ***Summary:*** "Try our nutritious and wholesome food at either of our two locations [in Toronto]: (1) 542 Yonge at Wellesley. Phone: 961-9522. (2) 2849 Dundas West. Phone: 762-1204."

1328. American Soybean Association. 1981. Soya Bluebook '81. St. Louis, Missouri: American Soybean Assoc. 188 p. June. Category listings (Index). Index of tables. Directory, alphabetical. Buyer's guide, alphabetical. Index to advertisers. 22 cm.
• ***Summary:*** Contents: Organizations: American Soybean Association, National Soybean Processors Association, Food Protein Council, Ontario Soya-Bean Growers Marketing Board, State Research Experiment Stations, United States Department of Agriculture, Foreign Agricultural Service, Government Buying Agencies.

Soy product directory: U.S. oil extraction plants / refineries, non-U.S. oil extraction plants / refineries, soyfoods manufacturers, industrial product manufacturers, exporters.

Buyer's guide to products & services: Category listings, products & services, manufacturers & suppliers guide.

Soy statistics: Charts [graphs], maps, tables, metric conversion, glossary of soybean terms, United States standards for soybeans.

Indexes: Directory (alphabetical company listings), buyer's guide (alphabetical company listings), advertisers.

Two tables on soybeans in Canada (p. 144) show: (1) Canadian soybean production: Estimated acreage seeded, yield, production, average farm price ($ per bu), and total farm value, crop years 1950-51 to 1980-81. (2) Canadian soybean production and utilization, 1950-80. Eight columns: Year (beginning Aug. 1). Production (000 bu). Imports of soybeans (000 bu). Supplies (of soybeans). Exports of soybeans (000 bu). Processed for oil and meal (crushed, 000 bu). Soy oil produced (000 lb). Soybean oilcake produced (short tons [1 short ton = 2,000 lb]). Address: P.O. Box 27300, St. Louis, Missouri 63141. Phone: 314-432-1600.

1329. American Soybean Association. 1981. Soya Bluebook '81. St. Louis, Missouri: American Soybean Assoc. 188 p. June. Category listings (Index). Index of tables. Directory, alphabetical. Buyer's guide, alphabetical. Index to advertisers. 22 cm.
• ***Summary:*** Contents: Organizations: American Soybean Association, National Soybean Processors Association, Food Protein Council, Ontario Soya-Bean Growers Marketing Board, State Research Experiment Stations, United States Department of Agriculture, Foreign Agricultural Service, Government Buying Agencies.

Soy product directory: U.S. oil extraction plants / refineries, non-U.S. oil extraction plants / refineries, soyfoods manufacturers, industrial product manufacturers, exporters.

Buyer's guide to products & services: Category listings, products & services, manufacturers & suppliers guide.

Soy statistics: Charts [graphs], maps, tables, metric conversion, glossary of soybean terms, United States standards for soybeans.

Indexes: Directory (alphabetical company listings), buyer's guide (alphabetical company listings), advertisers.

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1330. Brisson, G.J.; Keeney, M.; Enig, M.; Sampugna, J. 1981. Report of the Ad Hoc Committee on the Composition of Special Margarines: A critique. 42 p. June. [76 ref]
• ***Summary:*** The title page states that the report was "Submitted by a committee of medical and scientific experts... at the request of the Dairy Bureau of Canada. No publisher or place of publication is given. This pro-dairy report attempts to refute the report of the ad hoc committee.

Contents: Summary. Summation of comments. Introduction. Critique: 1. There is no evidence of essential fatty acid (EFA) deficiency or marginal intake of EFA in Canada. 2. Arbitrary recommendations on linoleic acid. 3. There is no reliable assay for linoleic acid. 4. High levels of polyunsaturated fatty acid (PUFA) have not yet been proven beneficial. 5. The lipid hypothesis has not been proven. 6. The metabolic effects of *trans* fatty acids and other isomers have not been fully elucidated. 7. The consumer should not be misled. 8. General comments. 9. Additional research is needed in several areas. 10. Recommendations of the ad hoc

committee should not be implemented. Critique committee members and consultants. References. Address: 1. Prof. of Nutrition, Laval Univ., Quebec, QUE, Canada; 2-4. Biochemistry Div., Dep. of Chemistry, Univ. of Maryland.

1331. Cloud, Jon. 1981. The ecological side dish [Soysage]. *Soyfoods* No. 5. p. 40. Summer.
• ***Summary:*** "Soysage was born out of a no-waste consciousness... The okara (soybean pulp or fiber), usually viewed as a nuisance, is now viewed as a potential resource." Describes the basic process for making soysage with okara.

"During the World War II years, a product called Soysage was developed and trademarked by W.H. and Alice Braun, owners of Imperial Brands of Chicago, Illinois. Their Soysage was made from soyflour, peanut flour, cottonseed flour, wheat middlings, wheat germ, yeast, vegetable protein, seasoning. Very little is known about that venture, however, since the trademark was renewed for only a short time." The Farm in Summertown, Tennessee, rediscovered the term "soysage" in the early 1970s and developed their own version, which was used mostly as a side dish.

Photos show: Soysage labels. A large stainless steel tray filled with 3 rows of soysage patties.

1332. **Product Name:** Soysage (Meatless Okara-based Sausage).
**Manufacturer's Name:** Cloud Mountain, Inc.
**Manufacturer's Address:** Buffalo, New York.
**Date of Introduction:** 1981. July.
**New Product–Documentation:** Leviton. 1981. Soyfoods. Summer. p. 43. "Jon Cloud, owner of Cloud Mountain, manufactures and distributes 2,000 lb. of soysage monthly, fresh and refrigerated, primarily in Canada. The soysage is produced in Ontario, Canada, using the facilities of a tofu plant. Cloud Mountain is North America's largest producer and distributor of soysage." It is the company's biggest money maker, retailing for $1.60/lb.

1333. Leviton, Richard. 1981. The legal side of soysage. *Soyfoods* No. 5. p. 43. Summer.
• ***Summary:*** Jon Cloud, owner of Cloud Mountain, Inc. of Buffalo, New York, makes and distributes about 2,000 lb/month of soysage, fresh and refrigerated, primarily in Canada. This soysage, which retails for $1.60/lb, is manufactured in Toronto in a tofu plant. Soysage is Cloud's biggest money maker, and Cloud Mountain is north America's largest producer and distributor of soysage. However when trying to apply for a Canadian trademark, they met with serious problems.

First, Canada's Department of Consumer and Corporate Affairs said it is illegal in Canada to label a product "soysage" since it is not a qualified or standard meat substitute. It fails to meet Canada's nutritional composition standards, and would need to be extensively fortified. Yet even if the product were fortified, the Department refused to let Cloud market the product as "soysage."

Second, when Cloud Mountain applied for a U.S. trademark, a Bureau of Trademarks official told them to desist from using the term "soysage: as it was misleading.

After a fruitless 8-month legal struggle, Jon Cloud happened upon the Food Directorate, a division of the Health Protection Branch or Canada's Health, Education, and Welfare Department. They classified Cloud's product as "a non-standardized food" and allowed Cloud to sell it as a vegetarian product, rather than a meat substitute. The Food Directorate plans to draft a series of new standards for other soy products, including tofu. Address: Colrain, Massachusetts.

1334. Londin, Louise. 1981. Soy delis & Mintz's Buffet. *Soyfoods* No. 5. p. 6-7. Summer.
• ***Summary:*** Discusses the Good Nature Deli in Oak Park, Illinois, started on 14 December 1980 by Kevin O'Brien and Mary Ellen Sackett; The Soyateria in Toronto, Canada, situated in front of Soy City Foods and started in 1980 by Jon Cloud; and Mintz's Buffet (Glatt Kosher Cookery and Catering) in New York City. "David Mintz's popular recent contribution to tofu cookery is his creamy, delicious Tofu Ice Kream, which has been attracting large numbers of people into the shop. It is an original blend of tofu, soymilk, fresh fruits, natural essences of apples, figs and raisins, pure wildflower honey, egg whites, and soy oil. It comes in such tempting flavors as country vanilla, old fashioned chocolate, strawberries n' kream, peaches n' kream, apples n' kream, dutch nut chocolate, and apricot rum. At the Buffet, they call him Mintz, the Prince of Tofu." Photos show: David Mintz at his Tofu Time ice cream machine. The deli case at Mintz's Buffet.

1335. Jaeger, Martin. 1981. Pricing and marketing soybeans. *Ontario Ministry of Agriculture and Food, Factsheet* No. 81-084. 4 p. AGDEX 141/840. Revision of Aug. 1979.
• ***Summary:*** Contents: Introduction. Uses of soybeans. The soybean agreement. Pricing soybeans in Ontario: Example–Pricing Ontario soybeans at Chatham. Pricing under soybean contracts: Pricing at the time of contracting, pricing after contracting (deferred pricing), pricing after delivery. Direct hedging. Direct delivery. Special uses. Address: Economics Branch.

1336. Lowe, Marion. 1981. Tofu. *Chimo (Canada).* July/Aug. p. 41-42.
• ***Summary:*** An introduction to tofu, with two recipes (Tofu Rarebit, and Tofu Cheesecake), based on *The Book of Tofu* by Shurtleff & Aoyagi.

1337. Roberts, D.C.K.; Stalmach, M.E.; Khalil, M.W.; Hutchinson, J.C.; Carroll, K.K. 1981. Effect of dietary protein on composition and turnover of apoproteins in plasma lipoproteins of rabbits. *Canadian J. of Biochemistry* 59(8):642-47. Aug. [23 ref]
Address: Dep. of Biochemistry, Univ. of Western Ontario, London, ONT, Canada N6A 5C1.

1338. Yoshihara, Lulu. 1981. Re: History of and update on Shin-Mei-Do Miso Company. Letter to William Shurtleff at Soyfoods Center, Sept. 9. 3 p. Handwritten, with signature.
• ***Summary:*** "Shin-Mei-Do Miso started commercial production in April 1979. I studied miso making with the traditional masters at Maruman Miso Company in Iida City, Nagano Prefecture, Japan. Maruman still operates a *tezukuri* [hand crafted] shop as well as a huge factory and I was able to compare both processes and the resulting kinds of misos. Last spring my husband, Yoshi, visited them and received many compliments about our miso, as well as constructive criticism.

"We make two types of miso: *Kome* (organic soybeans, Kokuho Rose rice, sea salt, well water) age 1-1½ years, and *Mugi* (organic soybeans, Canadian barley, sea salt, well water) aged 22 months (2 summers).

"We also have 2 experimental batches of *genmai* [brown rice] miso made with whole organic brown rice (Lone Pine). This fall we will start making moromi miso, a type of naturally sweet finger-lickin' miso from a recipe we received from our teacher in Japan.

"This summer Yoshi and two local carpenters built a new addition to our miso workshop..." Address: Shin-Mei-Do Miso Co., Wren Rd., Denman Island, BC, Canada, V0R 1T0.

1339. White, Jim. 1981. Chinese take-out gets the taste test: Our experts explore Metro's other 'Chinatown'–the busy suburban take-out scene–and find some of the food good, much of it predictable but none of it exceptional. *Toronto Star (Ontario, Canada).* Sept. 20. p. D1.
• ***Summary:*** A Chinese woman observes that women's tastes are changing: "'Younger women tend to order a lot of bean curd [tofu] dishes, now. Its very popular. I think many of them are on diets.'" Address: Food editor.

1340. Adilman, Sid. 1981. Relief from chow mein: Breaking bread. *Toronto Star (Ontario, Canada).* Oct. 11. p. F15.
• ***Summary:*** Outside of Toronto's Chinatown the writer discovered an excellent restaurant named Dinner King, that serves Chinese vegetarian food. From "the four pages of strictly vegetarian offerings" he chose and enjoyed: (1) Bean curd and straw mushroom soup. Sparkling–with fresh tofu, straw mushrooms juicy and round, and no MSG. (2) Sangkan with pepper in garlic and black bean sauce. The writer was unable to find out what "Sangkan" was; it "had the texture and look of fried bean curd, made with dough." He called it "Breathtaking!" (3) Fried bean curd skin [yuba] rolls.

1341. Meyer, Walter H. 1981. Re: Comments on critique of report of ad hoc committee on the composition of special margarines, by Brisson, et al. Letter to Dr. George D. Micklea, Institute of Edible Oil Foods, c/o Standard Brands Canada Ltd., Mississauga, Ontario, Canada, Oct. 28. 6 p.
• ***Summary:*** "The Technical Committee of the Institute of Shortening and Edible Oils has reviewed the Critique of the Report of the Ad Hoc Committee on the Composition of Special Margarines, by Brisson *et al.* (June, 1981) and has found numerous statements that are misleading or scientifically inaccurate. The purpose of this memorandum is to call to your attention specific erroneous and misleading information presented in this Critique." Many of the controversies concern *trans* fatty acids. Address: Chairman, Technical Committee, Inst. of Shortening and Edible Oils, Inc., 1750 New York Ave., N.W., Washington, DC 20006. Phone: 296-7960.

1342. National Soybean Processors Association. 1981. Yearbook and trading rules 1981-1982. Washington, DC: National Soybean Processors Association. ii + 106 + A1-12. 23 cm. Spiral bound.
• ***Summary:*** On the cover (but not the title page) is written: Effective October 1, 1981. Issued annually to all members of the association. Contents: Constitution and by-laws. Officers and directors. Executive office. Members. Associate members. Standing committees. Trading rules on soybean meal (first adopted 18 Oct. 1933). Sales contract. Appendix to trading rules on soybean meal: Official methods of analysis (moisture, protein, crude fiber, oil {only method numbers listed}), sampling of soybean meal {at origin} (automatic mechanic sampler, pneumatic probe sampler, probe sampler), sampling of soybean meal (at barge loading transfer facilities), official weighmaster application, semi-annual scale report, manufacturers' certification–Installation of automatic sampler (at barge loading transfer facility), semi-automatic sampler certification (at barge loading transfer facility), official referee chemists (meal). Soybean meal export trading rules: Minimum blending procedures for export meal blended at ports, sampling of soybean meal (at vessel loading facilities), manufacturers certification–Installation of automatic sampler (at vessel loading facility), semi-automatic sampler certification (at vessel loading facility). Trading rules on soybean oil (first adopted 21 May 1930). Sales contract. Definitions of grade and quality of export oils. Soybean lecithin specifications. Appendix to trading rules on soybean oil: Inspection, grading soybean oil for

color (NSPA tentative method), methods of analysis (A.O.C.S. official methods): Soybean oil, crude; soybean oil, refined; soybean oil, refined and bleached; soybean oil for technical uses; soap stock, acidulated soap stock and tank bottoms (only method numbers listed), official weighmaster application, semi-annual scale report, official referee chemists (oil). Soybean oil export trading rules. Uniform soybean oil export contract. Foreign trade definitions.

The page titled National Soybean Processors Association (p. ii) states: "During the past crop year about 1,000,000,000 bushels of soybeans moved through processing plants of NSPA's 24 member firms. Approximately 50 percent of America's 1.8 billion-bushel soybean crop was bought and processed by NSPA members. Exporters account for another 36 percent of the crop, and the remainder [14%] is returned to farms for seed, feed, and residuals." Also discusses industry programs, soybean research, and international market development."

The section on officers, executive committee, and board of directors (p. 7-8) gives the name, company affiliation, and phone number of each person. Officers–Chairman: Gaylord O Coan, Gold Kist, Inc. Vice Chairman: Edward J. Cordes, Ralston Purina Co., President: Sheldon J. Hauck. Secretary: Donald H. Levinworth, Cargill, Inc. Treasurer: Lowell K. Rasmussen, Honeymead Products Co. Immediate past chairman: C. Lockwood Marine, Central Soya Co., Inc.

Executive committee: Richard G. Rypkema ('83), Agri Industries. Charles Bayless ('83), Archer Daniels Midland Co. David C. Thompson ('82), Bunge Corporation. Harold H. Leavenworth, Cargill, Inc. C. Lockwood Marine, Central Soya Co., Inc. Gaylord O. Coan, Gold Kist, Inc. Lowell K. Rasmussen, Honeymead Products Co. Kermit F. Head ('82), Missouri Farmers Assn.–Grain Div. Sewell L. Spedden ('82), Perdue, Incorporated. Edward J. Cordes, Ralston Purina Co.

Board of directors (alphabetically by company; each member company has one representative on the board): Richard G. Rypkema, Agri Industries. Thomas H. Wolfe, Anderson, Clayton & Co. Charles Bayless, Archer Daniels Midland Co. Keith Voigt, Boone Valley Coop. Proc. Assn. David C. Thompson, Bunge Corporation. Harold H. Leavenworth, Cargill, Inc. C. Lockwood Marine, Central Soya Co., Inc. Ronald L. Anderson, Continental Grain Co. Donald M. Chartier, Farmland Industries, Inc. Gaylord O. Coan, Gold Kist, Inc. Lowell K. Rasmussen, Honeymead Products Co. Kenneth J. McQueen, Land O'Lakes, Inc. Kermit F. Head, Missouri Farmers Assn.–Grain Div. Robert E. Hicks, Owensboro Grain Co., Inc. Sewell L. Spedden, Perdue, Incorporated. Wilton L. Adcock, Planters Oil Mill, Inc. Thomas L. Shade, Quincy Soybean Co. Edward J. Cordes, Ralston Purina Co. William P. Hudson, Riceland Foods, Inc. J.D. Morton, Sherman Oil Mill. Styles M. Harper, Southern Soya Corp. Kenneth A. Robinson, A.E. Staley Mfg. Corp. Preston C. Townsend, Townsends, Inc. Tyler Terrett, West Tennessee Soya Mill, Inc.

Executive office, Washington, DC: Executive Director, Sheldon J. Hauck. Director, Public Affairs: Murray C. Keene. Director, Regulatory Affairs: Rhond R. Roth. Administrative Asst.: Alicia B. Rickman. National Soybean Crop Improvement Council: Robert W. Judd, Managing Director. General counsel: Elroy H. Wolff, Sidley & Austin. Special counsel: Julian B. Heron, Jr., Heron, Haggart, Ford, Burchette & Ruckert.

Members (listed alphabetically by company; within each company, first the name of the official Association representative {who is on the Board}, followed by the other personal members listed alphabetically by surname. For example, Archer Daniels Midland Co., the company with the most personal members, has 23. After the name of each personal member is given with his address and phone number. In the listing below, the number of personal members is shown in parentheses after the name of each company, followed by city and state of the various locations): Agri Industries–Soybean processing division (2); Des Moines, Iowa. Anderson, Clayton & Co. (4): Phoenix, Arizona, Jackson, Mississippi, Houston, Texas. Archer Daniels Midland Co. (23); Archer Daniels Midland Co. (26); Little Rock, Arkansas; Augusta, Georgia; Decatur, Illinois; Galesburg, Illinois; Granite City, Illinois; Fredonia, Kansas; Mankato, Minnesota; Red Wing, Minnesota; Kansas City, Missouri; Clarksdale, Mississippi; Fremont, Nebraska; Lincoln, Nebraska; Kershaw, South Carolina; Memphis, Tennessee. Boone Valley Coop. Processing Assn. (3); Eagle Grove, Iowa. Bunge Corporation (9); Cairo, Illinois; Danville, Illinois; Logansport, Indiana; Emporia, Kansas; Marks, Mississippi; New York City, New York. Cargill, Inc. (20); Osceola, Arkansas; Gainesville, Georgia; Cedar Rapids, Iowa; Des Moines, Iowa; Sioux City, Iowa; Washington, Iowa; Chicago, Illinois; Wichita, Kansas; Burnsville, Minnesota; Minneapolis, Minnesota; Fayetteville, North Carolina; Sidney, Ohio; Memphis, Tennessee; Chesapeake, Virginia. Central Soya Co., Inc. (11); Gibson City, Illinois; Decatur, Indiana; Fort Wayne, Indiana; Indianapolis, Indiana; Belmond, Iowa; Bellevue, Ohio; Marion, Ohio; Delphos, Ohio; Chattanooga, Tennessee. Continental Grain Co. (11); Guntersville, Alabama; Chicago, Illinois; Taylorville, Illinois; New York City, New York; Cameron, South Carolina. Farmland Industries / Far Mar Co (4); Van Buren, Arkansas; Sergeant Bluff, Iowa; Hutchinson, Kansas; St. Joseph, Missouri. Gold Kist Inc. (6); Decatur, Alabama; Atlanta, Georgia; Valdosta, Georgia. Honeymead Products Co. (3); Mankato, Minnesota. Land O'Lakes, Inc. (5); Fort Dodge, Iowa; Sheldon, Iowa; Dawson, Minnesota; Minneapolis, Minnesota. Missouri Farmers Assn.–Grain Div. (6); Mexico, Missouri. Owensboro Grain Co., Inc. (2); Owensboro, Kentucky. Perdue Incorporated (2); Salisbury, Maryland.

Planters Oil Mill, Inc. (2); Rocky Mount, North Carolina. Quincy Soybean Co. (4); Quincy, Illinois. Ralston Purina Co. (8); Bloomington, Illinois; Lafayette, Indiana; Iowa Falls, Iowa; Louisville, Kentucky; Kansas City, Missouri; St. Louis, Missouri; Raleigh, North Carolina; Memphis, Tennessee. Riceland Foods, Inc. (9); Helena, Arkansas; Stuttgart, Arkansas. Sherman Oil Mill (1); Fort Worth, Texas. Southern Soya Corp. (1); Estill, South Carolina. A.E. Staley Manufacturing Co. (7); Decatur, Illinois. Townsend's Inc. (2); Millsboro, Delaware. West Tennessee Soya Mill, Inc. (1); Tiptonville, Tennessee.

Associate Members: ACLI Soya Co, White Plains, New York. Anderson Clayton Foods, Dallas, Texas. Balfour MacClaine International, Ltd., New York City, New York. Best Foods, a Unit of CPC International Inc., Englewood Cliffs, New Jersey. Canadian Vegetable Oil Processing–Div. of Canada Packers Inc., Hamilton, Ontario, Canada. Cobec Brazilian Trading & Warehousing Corp. of the U.S., New York City. Delta Cotton Oil & Fertilizer Co., Jackson, Mississippi. Durkee Foods, Div. of SCM Corporation, Chicago, Illinois (Millark M. Evak). Hunt-Wesson Foods, Inc., Fullerton, California. Kraft, Inc.; Glenview, Illinois; Memphis, Tennessee. Lever Bros Co., New York City, New York. Louis Dreyfus, Stamford, Connecticut. Maple Leaf Monarch Co., Toronto, Ontario, Canada (W.G. Milliken). Marwood Company, San Francisco, California. Overseas Commodities Corp., Minneapolis, Minnesota. Pillsbury Co., Minneapolis, Minnesota. Procter & Gamble Co., Cincinnati, Ohio. Schouten International, Inc., Minneapolis, Minnesota. Spencer Kellogg, Div. of Textron, Inc., Buffalo, New York. Alfred C. Toepfer, Inc., New York City, New York (Dierk Overheu).

Standing committees: For each committee, the function of the committee, the names of all members (with the chairman designated), with the company and company address of each are given–Export development committee, Crop Improvement Council. Meal trading rules. Oil trading rules. Safety, health, and loss prevention. Technical. Address: 1800 M. St., N.W., Washington, DC 20036. Phone: 202/452-8040.

1343. **Product Name:** Tofu.
**Manufacturer's Name:** Thistledown Soyfoods.
**Manufacturer's Address:** R.R. 5, Duncan, BC, V0L 4T6, Canada.
**Date of Introduction:** 1981. October.
**New Product–Documentation:** Leviton. 1982. In a Small Bright Building. They began making tofu in Oct. 1981.

1344. Pink, Dave. 1981. Oilseed processor ready to reap area advantages. *Windsor Star (Essex County, Ontario, Canada).* Nov. 9. p. 25.
• ***Summary:*** Maple Leaf Monarch (MLM) Company's Windsor plant opened for business in July 1979 with a capacity to crush 360,000 tonnes of soybeans each year and up to 95,000 tonnes "of the softer oilseeds including rapeseed (or canola), flax, and sunflower seeds." In Toronto the company could crush only 90,000 tonnes of soybeans and 50,000 tonnes of flax. The company was hoping that their new oilseed crushing plant in Windsor, in Canada's soybean heartland, would give it an edge over the competition. But after two years in production, company president William Milliken says a Windsor address hasn't made much difference–so far." Local soybean production hasn't grown much; MLM depends on the USA for 40% of its soybean supply. But Milliken is optimistic that the move will eventually pay off. MLM has the best of both worlds. First, a 42-acre site on the Detroit River in Windsor's west end, gives access to a deep water port. Second, the surrounding counties of Essex, Kent, and Lambdon, are Canada's major soybean producing areas.

MLM, which employs about 115 (mostly skilled tradesmen) is owned equally by two parent companies: (1) Maple Leaf Mills, a division of Miami, Florida-based Norin Corp. which is now controlled by Canadian Pacific Ltd., and (2) Lever Bros., a division of the giant European multi-national Unilever Corp. MLM's only other Ontario competitor, Victory Soya Mills, has announced no plans to crush rapeseed. MLM supplies about 36% of Eastern Canadian soy products from its $60 million Windsor plant–slightly behind Victory Soya Mills and slightly ahead of Canada Packers. MLM had sales of about $200 million in 1980. These three Eastern Canada crushers combined were able to supply just 80% of Eastern Canada's one million tonne soybean meal market last year, with the balance coming from U.S. firms. The three crushers supplied 172,000 tonnes of soybean oil last year, including small amounts exported to North Africa and the Caribbean. Only 4,000 tonnes of U.S. soybean oil had to be imported into Eastern Canada. But the three Eastern crushers can't compete with U.S. companies for the Western Canadian market; Minnesota crushers can offer lower prices. MLM will continue to run 24 hours a day, 7 days a week, even though there is a soybean oil surplus.

A photo shows William Milliken in a hard hat, standing outside the MLM mill. Age 60, he is a 35-year veteran of the oil seeds business.

Note: This is the earliest document seen (Jan. 2005) that mentions "canola" together with soybeans. The word "Canola" is derived from CANada + Oil + LOw acid. Address: Star agriculture reporter.

1345. *Plenty Canada News (Lanark, Ontario, Canada).*1981. Integrated rural development program [Lesotho, Africa]. Fall. p. 2.
• ***Summary:*** "At the Motsemocha Village Technology Centre four sleeping huts have now been completed and

others are being built... and the masons have begun building the sandstone walls of the soy dairy."

"Soy demonstrations instructing local Basotho people about the home preparation of soy foods continue. Local response and requests for further training has encouraged expansion of this program. One half litre of soy milk per day for children and one litre of soy milk for adults or its equivalent from other soy foods provides approximately 3/4 of the minimum daily requirement of protein."

A photo shows two round huts, one with a conical thatched roof and the other with no roof yet. Address: R.R. 3, Lanark, Ontario K0G 1K0, Canada.

1346. *Plenty Canada News (Lanark, Ontario, Canada).*1981. Soy Dairy: Integrated soy project–Guatemala. Fall. p. 3.
• ***Summary:*** "The Integrated Soy Project which Plenty Canada introduced into the Guatemala Highlands is continuing without the presence of Plenty volunteers. The Indigenos of San Bartolo, trained by Plenty Volunteers in soy technology, now operate their Soy Dairy on a daily basis. Two hundred local farmers have grown enough soybeans to supply the dairy for the rest of this year.

"The dairy is currently sustaining itself by selling soy ice bean and tofu at an affordable price in the local market. Every week it sells about 75 gallons of ice beans and 50 lbs. of tofu, and is making just enough money to cover weekly operating expenses."

"Just about everybody seems to love ice cream. The soy ice bean is rich and creamy and is made with all natural native fruits and flavors such as: banana, pineapple, orange, raspberry, zapote, papaya, melon and chocolate."

An illustration shows a cone of "Soy Ice Bean." A photo shows many Guatemalan children happily holding up cones of soy ice bean. Below this article is a form requesting donations to Plenty Canada. Address: R.R. 3, Lanark, Ontario K0G 1K0, Canada.

1347. White, Jim. 1981. Food gifts good enough to give and receive: Christmas gifts. *Toronto Star (Ontario, Canada).* Dec. 6. p. E4.
• ***Summary:*** No. 3 is tofu, also known as the "white steak" of the Orient [sic], bean curd, or dofu. It "is that shimmery, squiggly custard found in Chinese and Japanese restaurants."

Made from soy beans, tofu is just catching on. It is a healthy food, a good source of protein, that contains no cholesterol and is low in calories and sodium. Vegetarians like tofu, as do those who are allergic to dairy products. In fact, many alternatives to dairy products are now made from tofu.

Since tofu is inexpensive, it should grow in popularity among those who are budget minded or thrifty.

For the many people who run out of ideas for how to prepare tofu, its smart to buy a good tofu cookbook. *Cook with Tofu,* by Christina Clarke is one of these. Address: Food editor.

1348. Howell, R.W. 1981. Re: Early soybean physiologists in the United States. Letter to William Shurtleff at Soyfoods Center, Dec. 23. 3 p.
• ***Summary:*** "Dr. W.L. Burlison was an ardent proponent of the importance of plant physiology to agronomy. In his presidential address to the American Society of Agronomy on November 17, 1927, he said, 'Agronomy... must ally itself with those sciences that are basic in the interpretation of plant function, namely, chemistry, physics, and plant physiology.' It is no coincidence that the USDA soybean program included a physiologist from the earliest days and that physiology has had a prominence in Agronomy at Illinois that is unequalled.

"E.B. Earley was the first physiologist in the U.S. Regional Soybean Laboratory at Illinois and Missouri from 1937 to 1944, when he joined the University of Illinois faculty. He published a paper on soybean reaction to zinc, and one on temperature of the root environment of soybeans. Most of his career was devoted to corn research.

"D.F. McAlister came to the Laboratory after World War II. His research concerned mineral nutrition, and the effects of defoliation. He left in 1951 to become a department head at the University of Arizona, later serving that University in Brazil and as assistant director of the Agricultural Experiment Station.

"I succeeded McAlister in 1952, continuing until I became investigations leader for USDA soybean work in 1964. My research concerned phosphorus nutrition and metabolism, oil synthesis, and effects of temperature on seed development and composition.

Several physiologists joined the USDA during the 1960s: R.E. Johnson, mineral nutrition; R.W. Rinne, oil metabolism; W.L. Ogren, photosynthesis; J.E. Harper, mineral nutrition; C. Sloger, nitrogen fixation; C.F. Tester, biochemistry.

"Soybeans have been the object of study by many physiologists whose primary focus was not the plant itself, but some key physiological processes. This trend goes back to the work of Garner and Allard, who identified photoperiodism in the 1910s, and to Borthwick, Parker, and Hendricks in the 1930s and later H.J. Evans, now at Oregon State, and R.H. Burris, of Wisconsin, made basic contributions to understanding of nitrogen fixation in soybeans. The system of Maturity Groups (00 to X) to identify the areas of adaptation of soybean varieties is based directly on the photoperiod research of Borthwick and Parker. Borthwick is one of the few agricultural scientists to be elected to membership in the National Academy of Sciences, a recognition of the fundamental significance of

his work in photoperiodism, much of it with 'Biloxi' Soybeans. J.C. Brown, and C. Foy wrote several outstanding papers on comparative iron metabolism, based on a variant type reported about 1940 by M.G. Weiss.

"Soybeans were 'discovered' by crop physiologists around 1960. R.M. Shibles began work on soybeans at Iowa State about that time, as did I.C. Anderson. A student of Anderson's was J.W. Tanner, who went to Canada and pioneered soybean physiology at Guelph" (Ontario province).

"Very recently, research groups concentrating on photosynthesis have been created, building on the foundation established in soybeans. Work in soybeans provided the basis for understanding photorespiration, virtual absence of which in maize and a few other grasses, explains much of the difference in potential productivity of soybeans and corn. Photorespiration is 'like a leak' by which much of the product of photosynthesis is lost before storage.

"Likewise, much of the theory of symbiotic nitrogen fixation has evolved from work on soybeans. In another instance, differences in expression of physiologic traits (iron and phosphorus nutrition) have been shown to be controlled in some cases by very simple and traditional genetic mechanisms.

"With the growth in number of soybean physiologists and the increased understanding of complex processes, it has become more difficult to render simple physiological explanations of questions of growth. The goal of 'helping the breeders' has been elusive. There has not been identified a key process, measurement or improvement of which would replace conventional testing. However, with the advent of genetic engineering the interface between physiologists and breeder/geneticists is becoming less clear. The skills for cell and tissue culture, protoplast fusion, and the other marvels of genetic engineering are those of the physiologist, perhaps now coming to fruition in partnership with the geneticist/breeder." Address: Head, Dep. of Agronomy, Univ. of Illinois.

1349. Fisher, G.A. 1981. The economics of soybean production in Ontario, 1980. Toronto, Ontario, Canada: Ontario Ministry of Agriculture and Food. 40 p. Dec. Series: Economics Information. [14 ref]
• ***Summary:*** Contents: Summary. Background of the study: Purpose, approach. An overview of the soybean industry: Uses of soybeans, production in Ontario, trends in production costs, marketing. Soybean production practices: Recommended practices in Ontario, practices used by growers in this study. Costs, yields, and returns: Production costs, yields, returns. Comparative production advantage of soybean and other cash grain crops. Marketing options for Ontario growers. Appendix. 18 tables. 6 appendix tables. 2 figures. Address: Economics Branch, Ontario Ministry of Agriculture and Food, Legislative Buildings, Toronto, Ontario M7A 1B6.

1350. Hume, D.J. Jackson, Ann K.H. 1981. Pod formation in soybeans at low temperatures. *Crop Science* 21(6):933-37. Nov/Dec. [16 ref]
• ***Summary:*** Most soybean varieties stop forming pods at temperatures around 15ºC. This is a report of cold-tolerant varieties that form pods at day / night temperatures as low as 15 / 9ºC. Address: 1. Prof., Crop Science Dep., Univ. of Guelph, Guelph, ONT, Canada; 2. Science technician, Plant Physiology Div., Dep. of SIR, Palmerston North, New Zealand.

1351. **Product Name:** [Tofu].
**Foreign Name:** Tofu.
**Manufacturer's Name:** La Maison du Tofu Carmel.
**Manufacturer's Address:** CP 567, Bonaventure, QUE, Canada G0C 1E0. Phone: 418-752-5869.
**Date of Introduction:** 1981. December.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1981. Dec. 8. Owner: Dennis Connolly.

1352. Soycrafters Assoc. of North America. Soyfoods Center. 1981. Per capita use of soyfoods grows to nearly 9 lbs. in U.S. *Vegetarian Times* No. 52. Dec. p. 6.
• ***Summary:*** Based on a Sept. 1981 news release copyrighted by the Soyfoods Center and the Soycrafters Assoc. of North America, this summary of a market study gives for each major soyfood product the number of manufacturers in the USA, Canada, and worldwide. The tons/year of raw soybeans used. And (in the USA only) the tons of food produced, wholesale value, retail value, and number of employees.

In the USA, the number of manufacturers, tons of product produced, and retail value in million dollars are as follows for low technology, traditional: Tofu and tofu products (154, 22,700, $50.4), tempeh (32, 494, $1.78), soymilk and soymilk products (14, 148,000, $118.0), soy sauce, shoyu & tamari (15, 54,837, $203.0), soynuts and soynut butter (12, 2,750, $4.6), miso (10, 2,000, $4.8), soy sprouts (5, 360, $0.25), etc. Subtotals for low tech (284 manufacturers, 231,305 tons produced, $392.25 retail value).

For high-technology, modern: Soy flour & grits, defatted (12, 400,000, $190.4), textured, extruded soy flour (TSP/TVP) (2, 200,000, $179.2), soy protein concentrates (3, 45,000, $56.7), soy protein isolates (3, 45,000, $126.0), meat analogs (secondary products) (6, 20,000, $55,000). Subtotals for high tech (26 manufacturers, 710,000 tons produced, $615.6 retail value). Total low and high tech: 310 manufacturers, 941,305 tons produced, and $1,007.85 million dollars.

Also published in New Age (Jan. 1982, p. 17) under the title "Tofu Takes Over."

1353. Wolfe, Bernard M.; Giovannetti, P.M.; Cheng, D.C.H.; Roberts, D.C.K.; Carroll, K.K. 1981. Hypolipidemic effect of substituting soybean protein isolate for all meat and dairy protein in the diets of hypercholesterolemic men. *Nutrition Reports International* 24(6):1187-98. Dec. [42 ref]
• ***Summary:*** Isolated soy protein completely replaced animal protein in a diet fed to 7 human subjects for 49 days. Total cholesterol was lowered 13%, LDL cholesterol was lowered 17%, VLDL and HDL cholesterol were not changed. Address: Depts. of Medicine, Biochemistry and Home Economics (Brescia College) of Univ. of Western Ontario, London, ONT, Canada.

1354. **Product Name:** Lecithin.
**Manufacturer's Name:** Canada Packers Inc. Chemical Div.
**Manufacturer's Address:** 5100 Timberlea Blvd., Mississauga, ONT, L4W 2S5, Canada.
**Date of Introduction:** 1981.
**New Product–Documentation:** Soya Bluebook. 1981. p. 56.

1355. **Product Name:** Tofu Dream (Soymilk Ice Cream).
**Manufacturer's Name:** Farm Foods.
**Manufacturer's Address:** R.R. #3, Lanark, ONT, K0G 1K0, Canada. Phone: 613-278-2215.
**Date of Introduction:** 1981.
**Wt/Vol., Packaging, Price:** Pints.
**How Stored:** Frozen.
**New Product–Documentation:** Talk with Allan Brown. 1998. May 11. Tempeh (made by Allan in 1979) was the first commercial soy product made by Farm Foods in Lanark, Ontario. In about 1981 Farm Foods decided to focus their energy on a soy ice cream named Tofu Dream, their second soy product, which was similar to the Ice Bean made by The Farm in California. Arthur Herold was the man in charge of the product, which lasted for about 4 years.

1356. Brisson, Germain J. 1981. Lipids in human nutrition: An appraisal of some dietary concepts. Englewood, New Jersey: Jack K. Burgess. xvi + 175 p. Illust. 24 cm.
• ***Summary:*** Contains a good account of the issues in the *trans* fatty acids debate. See especially Chap. 3 "The enigma of *trans* fatty acids." The author appears to believe sincerely that *trans* fatty acids may be the heretofore unknown cause of coronary heart disease–and perhaps cancer. He uses the word "Cholesterophobia" to refer to his belief that excessive concern with blood cholesterol is unwarranted. Address: PhD, Prof. of Nutrition, Laval Univ., Quebec, Canada.

1357. Fats and oils in Canada: Annual review 1980. 1981. Ottawa, Ontario, Canada: Grain Marketing Office, Dept. of Industry, Trade and Commerce. 87 p. 28 cm.
• ***Summary:*** This annual government publication is packed with statistics on the subject. Address: Ottawa, Ontario, Canada.

1358. Kloss, Jethro. 1981. Back to Eden: A human interest story of health and restoration to be found in herb, root, and bark. Loma Linda, California: Back to Eden Books. xxxii + 684 p. Illust. Index. 18 cm. Kloss Family Heirloom Edition.
• ***Summary:*** One of the most creative and original sources of early soyfoods recipes, which include "Soybean Cream" and "Soybean Ice Cream." This revised edition contains the complete original text of this classic work on healing herbs, home remedies, diet, and health–plus 16 pages of new family recollections by Jethro Kloss' daughter, son, and granddaughter at the beginning of the book, and 16 pages of previously unpublished photographs in the middle of the book. This edition was first copyrighted in 1972. The book has been published continuously by the Kloss family since 1946. A blurb on the cover of the 1981 printing (which retails for $2.95) states: "Two million copy bestseller. The complete original text [with the same page numbers]. New family additions!" A color illustration by Harry Anderson shows a man and woman seated by an idyllic river, surrounded by birds and animals, in the Garden of Eden. The rear cover states that this is "The heirloom authorized Kloss family edition."

The contents of the book, except for the new sections mentioned above, are identical to the original 1939 edition. But the recollections of Jethro Kloss by his children and granddaughter contain a wealth of new and interesting information. The recollections by his daughter Promise Kloss Moffett note: "My father was born on a large farm near Manitowac, Wisconsin, on April 27, 1863. The ninth of eleven children born to his pioneering parents lived a healthy and happy life in that primitive Indian country...

"When he was about twenty, he went to Florida and worked in the orange groves, finally owning a large grove at Deland. Later he attended school in Nebraska and then in Battle Creek, Michigan. While in Battle Creek he worked closely with the then revolutionary medical leadership of the world-renowned Battle Creek Sanitarium. He saw clearly the disastrous results of the use of dangerous drugs then prevalent in caring for the sick. He developed further his own philosophy and understanding of the laws of nature...

"He was married March 5, 1900 to Miss Carrie Stilson, who had trained as a Bible worker and teacher and had labored in a mission in Madison, Wisconsin and taught

several terms of grade school. At that time he was a licensed minister in Wisconsin and they established their home at Rose Lawn. Two children were born to this union, Promise Joy and Paul, who died when only four weeks old of whooping cough. During these years, besides my father's ministerial work, my parent's operated a branch of the Battle Creek Sanitarium and also sold Battle Creek Sanitarium health foods. My mother died in July of 1905.

"In March, 1907, my father married Mrs. Amy Ponwith, a widow with a small daughter, Mabel. My father and step-mother owned and operated an attractive sanitarium in pleasant surroundings in St. Peter, Minnesota, which they named *The Home Sanitarium*... Their daughter Lucile was born here in St. Peter in 1908 and their son, Eden, in 1910.

"Next the Kloss's became interested in the self-supporting work being conducted in the south and visited some of the schools in North Carolina and Tennessee. About 1911 they sold the sanitarium in Minnesota and moved to Fountain Head, Tennessee, where their youngest daughter, Naomi, was born in 1913. Here they bought a 250 acre farm, built a large house and barn, and raised many kinds of fruits and vegetables...

"A later development in good health was his creation of a significant health food manufacturing operation in Amqui, Tennessee after receiving a call from them to take charge of their food factory...

"Before this factory was sold to the Nashville Agricultural Normal Institute he was shipping health foods all over the United States and Canada. It was during this time at this place that he originated many new health food recipes. This establishment later became a part of what has since become the well-known Madison College near Nashville, Tennessee.

"Our next move was to Brooke, Virginia where [in 1921] papa established a health food factory and retail market. Each of us children was pressed into service in one way or another with this family enterprise. At times we would be helping with some food experiment, or perhaps in typing and retyping the material that later became *Back to Eden*, which was many years in preparation. Jethro Kloss's son Eden was for many years his right hand helper. Whatever my father did in spreading the gospel of health and natural living, he did with all his might and trained his children in that same pattern of living...

"One of my favorite memories as a family is the daily worship hour when Father would gather his family of seven about him and we would sing hymns, read Bible verses around the circle, and pray together. He was a gentle but firm family leader.

"Although a strict disciplinarian, my father was warm-hearted and affectionate–devoted to his family. When he was away from home, we invariably received a letter from 'papa' every day...

"Eventually this health food factory at Brooke, Virginia was taken over by my step-sister, Mabel and her husband.

"The Kloss's then moved to Washington, D.C. and carried on his work of treating the sick, lecturing on health and a more intensive study of herbs and preparation of his book, *Back to Eden.* I still have in my possession an attractive menu... for a Demonstration Dinner he gave March 27, 1933, at the Dodge Hotel in Washington, D.C. The menu was completely vegetarian and included 'Sweetbreads a la Kloss.' The pumpkin pie and strawberry sundae were made with soy milk...

"*Back to Eden* was at last published in 1939, the fruition of much toil and sacrifice for many years by the entire Kloss family... [Jethro's] wife Amy [Pettis] Kloss died in 1944 at Fredericksburg, Virginia...

"In 1945 papa became acquainted with Mr. and Mrs. Deloe Robert Hiatt on a trip to Madison, Tennessee. Together they found a property at Coalmont, Tennessee, where the Hiatts took over the promotion and publication of *Back to Eden*... [Jethro] peacefully went to sleep in June of 1946, his eighty-fourth year [but he was age 83], and today rests in a little cemetery in Tennessee."

The recollections by his son, Eden, note: "I was born in St. Peter, Minnesota, on February 10, 1910, to Jethro and Amy Kloss... After the move to Tennessee, my parents developed a plant for the manufacture of a line of vegetarian meat substitutes, cereals, crackers, and other items, at Amqui, near Nashville. (Our business was called the Nashville Sanitarium Food Factory.) Many of my early memories center on that large two-story factory, where raw materials were transformed into good-tasting, healthful food products...

"My father was an untiring worker. He would be up hours before the rest of the family–building fires, starting cracker dough, and making everything ready so that the work could go full speed ahead when the workers arrived in the morning... One day when Eden was burned while canning tomatoes, Jethro rushed him to the Madison Sanitarium for treatment. Kloss also made gluten there.

"When I was nine or ten years old, the factory was sold to the private school at Madison and transferred to that campus, and our family traveled in our pickup truck, camping en route, from Tennessee to Virginia. Here, at a town named Brooke, we found an ideal location–a plot of ground with a building in which we could make and sell health foods and teach people about healthful living...

"It was here at Brooke, Virginia, that Papa started to put in uncounted hours working on the beginnings of his book, *Back to Eden.*

"After some years, my oldest sister and her husband took over the food factory, and my parents moved to Takoma Park (on the outskirts of Washington, D.C.)...

"Papa's travels to give lectures and food demonstrations took him to places like Miami, Florida, and

Houston, Texas."

There are also recollections by his granddaughter, Doris Joyce Kloss Gardiner. In about 1939-40 she used to be with her grandparents when they visited relatives in Falmouth, Virginia, just north of Fredericksburg. There she helped make soymilk: "Nor was I happy to stand at the stove stirring and stirring large kettles of soybean milk (so the milk wouldn't stick and be scorched)–a laborious and time-consuming process. But Grandpa's soybean milk was delicious, and so were the twenty or so other soy products that he originated and produced–including meat substitutes and soybean bread, butter, cheese, and ice cream...

"Often Grandpa would prepare soybean ice cream to serve at the close of his lectures or cooking demonstrations. One of my favorite treats was to lick the paddle from the ice-cream freezer before we left home to go to the lecture...

"Grandpa and Grandma Kloss died when I was in my mid-teens." The frontispiece (facing the title page) is a portrait photo of Jethro Kloss. An original of this photo was sent to Soyfoods Center in 1985 by Doris Kloss Gardiner of Loma Linda, California. On the 4th page of photos in the center section is an ad by "Kethro Kloss Health Food Company, Brooke, Virginia." Photos show two hand grinders, a large-scale gas-fired pressure cooker, a large stove-top pressure cooker, and a hand scaler. The text begins: "We manufacture a large line of health foods." In 1921 Kloss opened this health food factory in Brooke, VA, and it as on this site that he began writing *Back to Eden.* Address: P.O. Box 1439, Loma Linda, California 92354.

1359. Le tofu... [What is tofu?]. 1981. Quebec, Canada. 14 p. 28 cm. [Fre]
• ***Summary:*** This is a pirated edition of the English-language publication "What is tofu?" by Shurtleff and Aoyagi. It was pirated and produced by L'Entrepôt Coopératif L'Engoulevent, 320 rue St-Roch, Quebec, G1K 6S2. Phone: (418) 522-3347. 2,000 copies were printed in 1991. Address: Quebec, Canada.

1360. Leviton, Richard. 1981. Tofu. Colrain, Massachusetts: Published by the author. 19 p. Unpublished manuscript. 28 cm.
• ***Summary:*** Each page contains a large photo (mostly color) with a caption below explaining it. There are photos of: Nasoya Organic Tofu. Richard and Kathy Leviton and Tom Timmins behind a round cooling tank of tofu at Tomsun Foods. Packaging tofu at Victor Food Products in Canada. The production process used for tofu at Tomsun including soaking, grinding, cooking in a triple compartment steam cooker, separation of soymilk and okara, coagulation, pressing of the curds, manual cutting of the tofu, cooling the tofu in water in a long stainless steel cooling tank. Four photos of tofu recipes. Address: Colrain, Massachusetts.

1361. Matthews, D.J.; Hayes, P. 1981. The yield of soybeans under Northern Ireland conditions. *Record of Agricultural Research (Belfast, Northern Ireland Dep. of Agriculture)* 29:23-27. [7 ref]
• ***Summary:*** In 1979 three Swedish and two Canadian soybean varieties were grown at Newforge Lane, Belfast, Northern Ireland; their growth and yield were compared. The performance of 25 other soybean varieties of various origins were also evaluated using 20 plants of each variety. Of the 35 varieties used, only 11 flowered and 10 set pods. Only the three Swedish varieties produced a significant yield and only one, Traff, fully matured by late October. Yields were low, the highest yielding variety, Bravalla, producing 844 kg/ha of seed. Seed quality was low with a high proportion of abnormal seeds. The existing soybean varieties are not considered suited to the conditions of Northern Ireland. Address: 1-2. Dep. of Agricultural Botany, Queen's Univ., Belfast BT7 1NN, United Kingdom. Hayes' additional address: Field Botany Research Div., Dep. of Agriculture for Northern Ireland, Newforge Lane, Belfast BT9 5 PX.

1362. Meilke, Karl D.; Griffith, G.R. 1981. An application of the Market Share Approach to the demand for soyabean and rapeseed oil. *European Review of Agricultural Economics* 8(1):85-97. [23 ref]
• ***Summary:*** The authors use this approach to estimate demand for total vegetable oils and soybean oil in the USA, Canada, Japan, and the European Community (EC), and rapeseed oil in Canada. The results imply that the demand for rapeseed oil is more elastic than the demand for soybean oil in all regions, and that the demand for both rapeseed and soybean oil is by far the most elastic in the EC. Address: 1. Univ. of Guelph, ONT, Canada; 2. New South Wales Dep. of Agriculture, Australia.

1363. Milner, Max. 1981. Protein resources in international food aid programs. In: D.W. Stanley, E.D. Murray, and D.H. Lees, eds. 1981. Utilization of Protein Resources. Westport, CT: Food & Nutrition Press, Inc. 403 p. See p. 18-31. Chap. 2. [23 ref]
• ***Summary:*** Contents: Introduction. Unconventional proteins in the recent past. Developments in the early 1950s. Philosophical questions and problems. Initiatives in protein foods in the 1960s. Status of some protein resources. Soy protein products supplied by Food for Peace. Fish protein concentrate (FPC). Cottonseed flour. Canadian efforts. Guideline for preparing food grade groundnut (peanut) flour.

Table 2.1 is a partial list of protein-rich foods based on novel proteins, by country: Brazil: Fortifex (corn, soy), Enriched Maizena (corn, soy), Cerealina (corn, soy). Colombia: Incaparina (corn, soy), Colombiarhina (corn,

soy), Duryea (corn, soy). Ethiopia: Faffa (teff, cereal, milk, soy). Guatemala: Incaparina (corn, cottonseed, soy). Mexico: Protea (corn, soy). South Africa: Pronutro (corn, soy, yeast).

Table 2.2 gives the ingredients (with the percentage of each used) in four blended foods (special food supplements) distributed by USAID: Wheat Soy Blend, Corn Soy Milk, Instant Corn Soy Milk, and Whey Soy Drink Mix.

Table 2.3 gives the ingredients (with the percentage of each used) in five soy-fortified (SF) processed staple foods distributed by USAID: SF Bulgur, SF Flour 12%, SF Cornmeal, SF Sorghum Grits, SF Rolled Oats.

Table 2.4 shows the number of pounds sent in 1978, the total cost, and the cost per pound of the nine foods described above. The most popular product was Soy-fortified bulghur, of which 600.2 million pounds were sent at a cost of $50.7 million. It cost 8.4 cents a pound, the least expensive of the nine. The most expensive, Whey Soy Drink Mix, cost 23.2 cents a pound. Address: Assoc. Director, International Nutrition Planning Program, MIT, Cambridge, Massachusetts 02139.

1364. Pugi, K. 1981. Novel proteins, the North American experience. In: D.W. Stanley, E.D. Murray, and D.H. Lees, eds. 1981. Utilization of Protein Resources. Westport, CT: Food & Nutrition Press, Inc. 403 p. See p. 289-302. Chap. 15. [8 ref]
• ***Summary:*** Table 15.4 shows the relative cost in dollars per pound of utilizable protein from various sources in 1974. The least expensive source was cottonseed flour ($0.42/lb), followed by soy concentrate ($0.49), low-fat soy flour ($0.55), soy isolate ($0.75), and extruded soy ($1.87).

Table 15.5 shows the quantity and value of protein additive usage for human diets from 1970 to 1975. In 1975 dairy whey had the largest quantity shipped (495 million lb), followed by soy flour and grits (160), then casein (caseinates; 120). Most of the whey (87%) and the casein/caseinate (81%) is used in imitation dairy products. The quantity of soy-based products shipped in millions of pounds grew as follows during this period: Soy flour rose from 140 million lb in 1970 to 160 million lb in 1975. Soy concentrate rose from 30 to 35, soy isolate from 35 to 45, textured soy products from 20 to 30.

Table 15.6 shows the protein additive usage by food product category in 1975. For soy flour, 41% was used in baked goods, 24% in meat, and 13% in dry cereal for adults. For soy protein concentrate, 46% was used in meat products, 17% in dry cereals for infants, and 9% in baked goods. For soy protein isolate, 49% was used in meats, 24.4% in imitation dairy products, and 6.7% in baked goods. For textured soy protein products, 73% was used in meat products and 27% in other uses. The source of much of this information was a 1975 report by William C. Hale of Arthur D. Little, Inc. titled “Impact of Technology on the Food Supply” (50 p.). Address: Du Pont Canada Incorporated, P.O. Box 5000, Kingston, Ontario K7L 5A5, Canada.

1365. Satin, Morton; Findlay, Chris. 1981. Designing commercial protein foods. In: D.W. Stanley, E.D. Murray, and D.H. Lees, eds. 1981. Utilization of Protein Resources. Westport, CT: Food & Nutrition Press, Inc. 403 p. See p. 328-48. Chap. 17. [3 ref]
• ***Summary:*** Discusses the use of soy flour and soy protein concentrates in making bread since they are the most popular high-protein supplements currently in use. One goal is crumb lightness. Address: Steinberg Foods Ltd., 5600 Pierre de Coubertin, Montreal, QUE, H1N 1P9, Canada.

1366. Shurtleff, William; Aoyagi, Akiko. 1981. Qu’est-ce le tofu? Traduction et mise en page: L’équipe de l’Informatek, Quebec [What is tofu? Translated into French by the folks at Informatek, Quebec, Canada]. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549 USA. 16 p. [Fre]
• ***Summary:*** Contents: Introduction: What is tofu? A family of distinctively varied foods. A storehouse of high-quality protein. A pillar of vegetarian nutrition. An ideal food: Low in saturated fats, free of cholesterol; an ideal diet food. Buying and storing tofu. Making tofu at home and in communities. Soybeans, tofu, and the world food crisis. Tofu shops in Japan. Cooking with tofu (13 recipes). Address: Authors: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Informatek: 688 St-Jean, Québec, G1R 1P8, Canada. Phone: Quebec: (418) 522-5386.

1367. Stanley, David W.; Murray, E.D.; Lees, David H. 1981. Utilization of protein resources. Westport, Connecticut: Food & Nutrition Press. 403 p. Illust. Index. 24 cm. [300+ ref]
• ***Summary:*** This book is based on the International Symposium on Protein Utilization held 13-16 Aug. 1978 at Guelph, Ontario, Canada. It contains 22 chapters by various authors in 5 sections. Those related to soy are cited separately. Address: 1. Dep. of Food Science, Univ. of Guelph, ONT, Canada; 2. Dep. of Food Science, Univ. of Manitoba, Winnipeg, Manitoba, Canada; 3. Griffith Laboratories, Ltd., Scarborough, ONT, Canada.

1368. Thompson, Donald E. comp. 1981. Indiana authors and their books 1967-1980: Also containing additional names from the beginnings of Indiana statehood. 3 vols. Crawfordsville, Indiana: Wabash College. Index. 28 cm.
• ***Summary:*** On page 421 is an entry for “Wiancko, Alfred Theodor: 1872-1949.” Wiancko was born on 16 Oct. 1872 in Sparrow Lake, Ontario, Canada. 1895–He received the B.S. degree from Ontario Agricultural College, where he was later assistant librarian and taught German. 1901-03–In

Nebraska he worked for the Standard Cattle Co. and the University of Nebraska. 1903–He arrived at Purdue University, where he taught in the school of agriculture. Later he was head of the department of agronomy and did research. 1943–Prof. Wiancko retired. 1949 Dec. 10–He died in Eustis, Florida.

1950–Obituary for Prof. Wiancko in the *Proceedings of the Indiana Academy of Science* (Vol. 60). Address: Librarian Emeritus, Wasbash College, Indiana.

1369. Yan, Martin. 1981. The Yan can cook book. Garden City, New York: Doubleday & Company Inc. 355 p. Illust.
• ***Summary:*** This Chinese cookbook, published in both hardcover and paperback, contains at least 15 recipes using bean curd (tofu), especially in the chapter titled "Bean Curd, Eggs, and Other Protein-Rich Foods" (p. 179-99). Tofu is usually referred to as "soybean curd" or "bean curd." Pages 185-87 contain a recipe for making tofu at home, and give a nutritional comparison of firm bean curd, chicken eggs, ground beef, and cottage cheese. In the chapter "Saucy Dips" is a recipe for "Black Bean Sauce" using "salted black beans" [soy nuggets].

The glossary (p. 313-) gives good descriptions of the following soyfoods: Black beans salted, brown soy sauce, Hoisin sauce, Hot bean paste, MSG (monosodium glutamate), soy sauce, bean curd, and soybean sheets dried (yuba).

The author is the star of a popular daily Chinese cooking show named "Yan Can," which he has hosted since 1978. Born and raised in Kwongchow, China, he left China in 1963 and began cooking at the age of 13 as an apprentice in a popular Hong Kong Restaurant (owned by his uncle) and at age 18 he had earned a diploma from the Overseas Institute of Cookery. Arriving in the USA in 1969, he earned a masters degree from the University of California at Davis.

1370. [Japan miso export statistics]. 1981. In: Okura-sho Yushutsu Tsukan Tokei-hyo. Tokyo, Japan.
• ***Summary:*** Gives miso export statistics for 15 countries. For each country gives: 1980 weight and 1981 weight (in kg). Percentage increase. 1980 and 1981 price in yen. Percentage price increase. The top countries, in descending order of amount exported are (with the 1981 weight in kg for each): USA 834,303. Singapore 94,988. Netherlands 67,767. Canada 46,178. England 40,371. West Germany 39,966. Australia 39,432. Iraq 34,509. Indonesia 30,620. Hong Kong 28,940. France 27,959. Belgium 26,625. Taiwan 25,238. Italy 18,755. Saudi Arabia 18,627. Total for all miso exports to all countries 1,524,008. Address: Tokyo, Japan.

1371. *Soybean Update (Winnipeg, Manitoba, Canada).*1981—. Serial/periodical. Richardson Securities of Canada. Annual.
• ***Summary:*** Continues Soybean Update (Winnipeg). Address: Canada.

1372. Bailey, L.D.; Hamilton, R.I.; Chow, P.N.P. 1981? Soybean production–Research developments. Paper presented at ? 15 p. Undated. Unpublished manuscript.
• ***Summary:*** "The present Soybean research program at Brandon has as its broad objective 'The development of management systems for efficient soybean production on the eastern prairies'. Guided by the results of the previous research this new research was initiated in 1972-1973, and takes a multidiscipline approach, involving three broad areas–(1) Breeding, (2) Evaluation and Physiology, (3) Management. The success of the program is due in large measure to the cooperation among the research team, with provincial agronomists and University researchers.

"The Breeding research is carried out by Dr. Voldeng of the Ottawa Research Station. Dr. Voldeng in cooperation with Dr. R.I. Hamilton (BRS) maintains a breeding and evaluation nursery at the Brandon Research Station... To date the program has produced two licensed varieties: (1) Maple Presto–the earliest licenced cultivar grown in North America. (2) Maple Amber–a high yielding, high protein early maturing cultivar."

The Corn Heat Unit system is used to help predict how soybean varieties will perform under various agro-climatic conditions. For example, research data shows that the McCall variety requires considerably more heat units and time to reach full maturity than the Maple Presto variety. A cool tolerance gene has recently been identified at Ottawa by Drs. Voldeng and Seitzer. "The research on row spacing shows that as the row width is reduced from 80 cm to 20 cm the yield of beans increased (Table 4), and further the height of the first pod above the ground increased, thus contributing to the yield. The results of the plant density studies are as conclusive (Table 5). The table shows that in general maximum yields are obtained with a population density of 60-100 plants/square meters.

"The data for the date of planting experiments have not been completely analyzed. However, preliminary indications are that May 15-25 appears to be the optimum seeding dates." Address: Agriculture Canada, Brandon Research Station, Box 610, Brandon, Manitoba, Canada.

1373. Soy City Foods. 1981? Recipes for tofu & soy-pro & other soy foods. W. Toronto, ONT, Canada. 9 p. No index. 22 cm. Undated.
• ***Summary:*** Contents: Retail section–tofu recipes. Soups. Salads. Sandwiches. Dinners. Desserts. Soypro. Soypro recipes. Address: 2847 Dundas St., West Toronto, ONT, Canada. Phone: (416) 762-1257.

1374. Soybean production in Manitoba. 1981? Government of Canada, Regional Economic Expansion, Manitoba Dep. of Agriculture, AGRO-MAN. 16 p. 16 x 23 cm. * Address: Manitoba, Canada.

1375. Tsukamoto, Joe. 1981? Soybean production in western Canada. Paper presented. 10 p. Undated. Unpublished manuscript.
• ***Summary:*** Discusses soybean variety development work in Alberta, Saskatchewan, and Manitoba provinces in Canada. Address: Manitoba Agriculture, Brandon, Manitoba, Canada.

1376. Linton, Marilyn. 1982. How's your tofu, old bean curd? *Sunday Sun (The).* Jan. 10. p. G-17.
• ***Summary:*** In ten years, "tofu will be as commonplace as pizza, as much a part of your eating style as yogurt." A photo shows Stephen Yu of Victor Food Products standing in front of his tofu products and cooling tank inside his factory. Yu's business has increased 300% is the last 3 years. Today he sells his tofu through Loblaws. Yu recommends that Caucasians start cooking with tofu by making Scrambled Tofu.

"Buying tofu: Most supermarkets carry tofu and all Chinese and Japanese grocery stores do. You can also buy freshly made tofu from Yet Sing, at 11 Baldwin, Victor Food's tofu costs $1.29 at Loblaws for a plastic package containing three pieces or 500 gm.

"Every Chinese restaurant in town includes dishes with tofu on its menu. Also try Soja's Tofu Cafe at 10 Kensington in the Kensington Market area. Nettie Cronish's tofu kiwi cake costs $12, serves eight, and is available (along with other tofu delicacies) by special order from her at 598-3228." Address: Toronto, ONT, Canada.

1377. Jordan, D.C. 1982. Notes: Transfer of *Rhizobium japonicum* Buchanan 1980 to *Bradyrhizobium* gen. nov., a genus of slow-growing, root nodule bacteria from leguminous plants. *International J. of Systematic Bacteriology* 32(1):136-39. Jan. [34 ref]
• ***Summary:*** "Recent data indicate that the slow-growing, non-acid producing root nodule bacteria of leguminous plants should be separated from the fast-growing, acid-producing strains and placed in a new genus... The name proposed for the new genus is Bradyrhizobium." Address: Microbiology Dep., College of Biological Science, Univ. of Guelph, Guelph, ONT, Canada N1G 2W1.

1378. Soyfoods Center. 1982. Tempeh shops in the West. Lafayette, California. 2 p. Jan. Unpublished manuscript.
• ***Summary:*** Lists the name, address, and phone number of 41 tempeh shops in the USA, 3 in Australia, 3 in Canada, 1 in England, 5 in the Netherlands, and 1 in West Germany. Address: Lafayette, California. Phone: 415-283-2991.

1379. Wood, Brian J.B. 1982. Soy sauce and miso. *Economic Microbiology* 7:39-86. Jan. A.H. Rose, ed. Fermented Foods. [50 ref]
• ***Summary:*** Contents: 1. Introduction. 2. The preparation of soy sauce: Introduction, preparation of raw materials (the beans, wheat), mixing, koji, moromi. 3. Of beans, microbes, and miso: Beans, microbes, miso. 4. Trade in soy sauce: Introduction, statistics. Table 1 (p. 64-66) shows exports of soy sauce in 1978, in tonnes (metric tons) from Hong Kong, Korean Republic, Singapore, Japan, and total, to almost every country in the world (with each country's population in millions), grouped by region as follows: 1. North America: Canada, USA (#1)–Regional total imports: 6,052.3 tonnes. 2. South and Central America [and Caribbean]: Argentina (#3 in region), Bolivia, Brazil, Chile, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico (#2), Nicaragua, Panama, Paraguay, Surinam, Venezuela (#1), Granada, Jamaica, Trinidad and Tobago, total. Former Dutch West Indies–Regional total imports: 1,046.4 tonnes. 3. Europe: Austria, Belgium, Czechoslovakia, Denmark, Finland, France (#4 in region), Germany (West #3), Greece, Italy, Netherlands (#2), Norway, Portugal, Spain, Sweden, Switzerland, UK (#1), USSR–Regional total imports: 3,017.7 tonnes. 4. Near and Middle East: Bahrain (#3), Egypt, India, Iran (#2), Iraq, Jordan, Kuwait, Oman, Qatar, Saudi Arabia (#1), United Arab Emirates, Yemen Arab Republic–Regional total imports: 1,193.5 tonnes. 5. Far East and Western Pacific: Brunei, Hong Kong (#3 in region), Indonesia, Japan, Korea (South), Macao, Malaysia (#2), Philippines, Sabah (#1; A state of Malaysia from 1963; Formerly British North Borneo), Sarawak (A state of Malaysia from 1963), Singapore, Taiwan, Thailand–Regional total imports: 3,139.4. 6. Pacific and Australasia: Australia (#1 in region), Cook Islands, Christmas Islands, Fiji, Guam (#2), Nauru, New Caledonia, New Hebrides, New Zealand, Oceania n.c.s. (#3), Papua New Guinea, Portuguese Timor, Samoa and Tonga, Solomon Islands, Tuvalu (Ellis Island), U.S. Oceania–Regional total imports: 1,647.5 tonnes.

Note: This is the earliest document seen (July 2008) concerning soybean products (soy sauce) in Kiribati (Christmas Islands), in Nauru, in Qatar, or in Tuvalu. This document contains the earliest date seen for soybean products in Kiribati (Christmas Islands), in Nauru, in Qatar, or in Tuvalu (1978); soybeans as such have not yet been reported.

7. Africa: Algeria, Canary Islands, Ethiopia, Gambia, Ghana, Kenya, Libya, Malagasy, Malawi, Mauritius (#2 in region), Nigeria, South Africa (Republic of, #1), Sudan, Réunion Islands (#3), Tanzania, Zaire. Other African countries–Regional total imports: 365.7 tonnes. World total imports: 15,731.5 tonnes, of which 6,192.8 tonnes from Hong Kong, 1,233.5 tonnes from South Korea, 1,713.6

tonnes from Singapore, 6,591.6 tonnes from Japan. The value in pounds sterling and in pounds sterling per tons of soy sauce is given for each exporter.

Other tables show: (2) Soy sauce exports (in tonnes and value) each year from 1976 to 1976 from Hong Kong, South Korea, Singapore, and Japan. A large percentage of Hong Kong's exports are re-exports (probably from China). (3) Total soy sauce exports from Japan, 1976-1978, by container type, with amount and value. (4) Soy sauce and miso production in Japan every 5 years from 1965 to 1978 (in tonnes). (5) Soy sauce and miso production in Japan for export in 1976, 1977, and 1978. Miso production (in tonnes) averaged about 40% of soy sauce production, and miso exports (in tonnes) averaged about 13% of soy sauce exports. (6) Imports of soy sauce into Hong Kong, Singapore, and the USA from exporting countries in 1978 (with figures for exports from China in 1976 and 1977). (7) Re-exports of soy sauce (made in China) from Hong Kong and Singapore in 1978 to major importing countries worldwide, by region, by country. Small countries that are the destination of this soy sauce include: Honduras, Nicaragua, Panama, Venezuela, Trinidad and Tobago, Former Dutch West Indies [also called Netherlands Antilles; they are part of the Lesser Antilles and consist of two groups of islands in the Caribbean Sea: Curaçao and Bonaire, just off the Venezuelan coast, and Sint Eustatius, Saba and Sint Maarten, located southeast of the Virgin Islands. The islands form an autonomous part of the Kingdom of the Netherlands], Pakistan, Saudi Arabia, United Arab Emirates, Brunei, Sabah, Sarawak, Fiji, Nauru, Oceanea (non-U.S.), Oceanea (U.S.), Papua, Samoa and Tonga, Solomon Islands, Ghana, Malagasy Republic, Togo. Total from Hong Kong: 2,945.3 tonnes, and from Singapore 109.5 tonnes.

(8) Exports of miso (in tonnes) from South Korea and Japan in 1978 to major importing countries worldwide, by region, by country. The leading importers are: USA (622), Saudi Arabia (353), Singapore (66), Bahrain (64), Netherlands (38), Iran (29), Iraq (29) France (28), German Federal Republic (23), Smaller importers include: Chile, Guyana, Surinam, Bangladesh, Iran, Iraq, Jordan, Kuwait, Quatar, Saudi Arabia, United Arab Emirates, Yemen Arab Republic, Sabah, Fiji, Guam, New Hebrides, Papua New Guinea, Samoa, Solomon Islands, Algeria, Canary Islands, Ghana, Kenya, Libya, Mozambique, South Africa Republic, Zaire.

Note: This is the earliest document seen (June 2007) concerning soybean products (miso) in Quatar. This document contains the earliest date seen for soybean products in Quatar (1978); soybeans as such have not yet been reported.

(9) Exports of miso from South Korea and Japan in 1976, 1977, and 1978 (quantity and value each year; no importing country names are given).

5. Tour of South East Asia: Technical and scientific aspects, trade aspects. 6. Acknowledgments. References

The chapter on Trade states: Soy sauce and soy paste (miso) are traded between all countries of South East Asia. The Korean Republic's exports nearly quadrupled in tonnage. The Kikkoman Company's production facility in Wisconsin produced 21,6000 tonnes of soy sauce in 1978. This was equal to 3 times the total exports from Japan in the same year. Japan's total share of the world soy sauce market remains very healthy. Miso exports are still small in comparison with soy sauce. On a rising market Japan's exports still only represent 0.2% of its annual miso production; "clearly there is considerable room for expansion here."

Miso is of greater relative importance to Korea than it is to Japan. Among the European countries, Belgium and Holland import the greatest amount of miso on a per capita basis. Spain imports a fair amount of miso. The U.S.A. and Canada had total miso imports totaling about 10% of their soy sauce imports.

"In Thailand, there are about 50 soy sauce factories, the majority of which are small, producing less than 100 kilolitres per year, although it should be noted that most of them also produce soybean paste and soybean cheese [probably tofu]. The total annual consumption of soy sauce in Thailand is estimated at about 6,000 kilolitres (about 7,200 tonnes).

"In Malaysia, there are about 140 soy sauce factories producing in total an estimated 5.5 million gallons of soy sauce per year according to the proprietor of a leading brewery in Kuala Lumpur. This is about 21,000 tonnes per annum" (p. 84). Address: Dep. of Applied Microbiology, Univ., of Strathclyde, Glasgow [Scotland], U.K.

1380. Hillyard, Roger. 1982. History of Erewhon, natural foods, and macrobiotics in America. Part I (Interview). Conducted by William Shurtleff of Soyfoods Center, Feb. 7. 2 p. transcript.

• ***Summary:*** Roger got involved with macrobiotics in San Francisco in about 1965. He lived in San Francisco, was doing light shows at the Avalon Ballroom, read the book *You are All Sanpaku* [by Sakurazawa Nyoiti (George Ohsawa); English version by William Dufty], and got involved. Also in about 1965, Herman Aihara and Bob Kennedy used to come to town to lecture in a church on Oak Street. Bill Tara and Paul Hawken, who were filmmakers, lived in a warehouse on lower Mission St. described in the *Electric Kool-Aid Acid Test,* by Tom Wolfe (largely about Ken Kesey and the Merry Pranksters). "A little macro scene started. We heard that Boston was macro Mecca."

Roger arrived in Boston in Oct. 1969. Erewhon started when Michio and Aveline Kushi were living in Cambridge, Massachusetts; in their basement they had a little food,

which they would sell to people who came to hear Michio lecture. “The food was but a vehicle to the larger teaching. The food is like an asana or yoga posture, but the goal is enlightenment. You can get stuck on the food. That is why Michio had very, very little involvement in Erewhon’s food business, His focus was on the philosophy of macrobiotics and spreading it.”

The Erewhon store was (at the time) in the basement of today’s Redwing Books. Evan Root started the store, but he wanted to get out of it into a restaurant. Paul Hawken took over the sleepy little store. Bill Tara (who was from Santa Cruz) also worked there for a while. The tiny store had few customers, a very limited selection of products, and a little mail order business. Shortly after Roger arrived, the Erewhon store at 342 Newbury Street opened–in Nov. or Dec. 1969. Bruce Macdonald and Jim Docker helped to renovate the new store. The whole thing was called Erewhon Trading Co. In Feb. 1970 Roger started to work in this retail store.

Shortly thereafter, Paul Hawken went to Japan. At that time the only companies importing food from Japan were Chico-San and Infinity Foods in New York; both were macrobiotic. Erewhon bought from them, and then started doing a little wholesaling. After Paul went to Japan, Erewhon started importing directly from Japan. Paul got in touch with Mr. Kazama and helped to get Mitoku into the natural food export business. Kazama was an old friend of Obiyashi, who was an old friend of Michio Kushi’s from Columbia University. Muso was shipping to Chico-San and Infinity. Erewhon imported from Muso and Kazama. Roger thinks Mitoku started in about 1970-71. Before that they sold soccer shoes and cranes. The fact that Paul was in Japan was instrumental in getting Erewhon’s imports started.

The Erewhon retail store would sometimes get huge shipments, such as a 40-foot-long truck of rice that filled up the whole Erewhon storeroom. It was something like Kokuho Rose [a brand of short grain brown rice grown by Koda Bros. in Dos Palos, California]; it as not organically grown. There was really no room for it, and no refrigeration. At about this time the Lundberg Brothers in California started growing brown rice organically. At one time a boxcar of 100,000 lb of Lundberg rice arrived, so Erewhon needed more warehouse space. Also involved were Jean Allison (from California) and Wally Gorell (from the Straight Theater, Haight-Ashbury district, San Francisco). In about mid-1970 Erewhon leased a 10,000 square foot warehouse space on the 5th floor of 33 Farnsworth St. [a big brick warehouse] in Boston. The space had a nice milling room. Then the wholesale business took off. Roger left Boston in April 1971. He had been running both the distributing company and the wholesale company, but there was a store manager. The retail store expanded into its back room. Then the wholesale business grew like mad. Orders came from non-macro natural foods stores, from new macro groups, etc.

How did the natural food movement get started? As Roger recalls, it was not started by macros. In about 1966 or 1967 Sunset Natural Foods became New Age Foods, an early natural foods store run by Fred Rohe. The natural food movement sprung out of the new consciousness–the counterculture–as did macrobiotics. The macrobiotic movement fed the natural foods movement. One Erewhon customer was Mr. Natural in Carbondale, Illinois. Although he was not a macro, he bought miso, tamari, rice, etc. There were lots of other non-macro stores like that too. But there were also lots of macro stores. Bill Tara opened a store and macro center on the 14th floor of a downtown building in Chicago; out of that grew Food for Life. Tom Waxman started Essene in Philadelphia, Pennsylvania. These were two mini-Erewhons. Each started as a small retail store, then became a wholesaler. Erewhon provided the model.

Erewhon set up a branch distributor in Canada, which later became Manna Foods, with Gene Newman, a macro. Westbrae was a Berkeley political organization started by Bob Gerner, making granola. Erewhon West was connected with Bruce Macdonald. Bill Tara, with Aveline Kushi’s prodding, started the Erewhon store in Los Angeles; it did a little distributing. Bruce Macdonald went to Los Angeles, then Bill Tara left for England–Roger doesn’t know why. Erewhon West started growing. Jimmy Silver ran the Big Sanae, which became the Seventh Inn. Roger then went to Texas and in Jan. 1972 he worked with Deaf Smith for about a year. Later Erewhon West was sold to John Fountain, but really to John Demming–as a separate business from Erewhon.

The Well [a wholesale and distribution company in San Jose, California] was an offshoot of Fred Rohe’s New Age Foods, ca. 1969-1970. It was never macrobiotic. Fred sold stock in his business, had 2 stores in San Francisco, then opened a big natural foods store [actually a supermarket] named New Age Natural Foods on California Street in Palo Alto. The whole thing was a fiasco; the Palo Alto store never made money.

Deaf Smith Farms was established as a joint venture between Erewhon and Arrowhead Mills; it never worked out. In April 1971 Bruce Macdonald started a marketing company named Pure & Simple. In March 1972 Roger started working at the Well in San Jose. Bruce went to Green Mountain Grinery in Boulder, Colorado. Gradually The Well became Pure & Simple, and started importing from Mr. Kazama an Muso.

Paul Hawken was the first person to work with farmers to get them to grow grain organically for Erewhon. One of these was Carl Garrich of Lone Pine, Arkansas–after Erewhon moved to 33 Farnsworth Street. Roger did a lot of work with farmers at Arrowhead Mills, but not connected with macrobiotics.

Major macrobiotic wholesale distributors: Erewhon East and West, Laurelbrook (later), Food for Health, Essene, Manna in Canada (later). Llama (later) was not macro.

Macrobiotics played the major, primary role in introducing soyfoods to America. A little was also coming through Japan Foods [San Francisco] and Nishimoto [Trading Co., Los Angeles]. The macros made these foods available, but don't overcredit it; the time was ripe and it just happened. The main contribution of macrobiotics was simply making these foods available and teaching about them. Michio always said that macrobiotics is not just about food and the diet.

"It was frightening when we stopped to think about it. The business was doubling and tripling at a crazy rate." Roger still has his early notes but no accounting books. Continued. Address: California.

1381. White, Jim. 1982. Carobs brighten dull winter dishes. *Toronto Star (Ontario, Canada).* Feb. 10. p. C8.
• ***Summary:*** Frieda Caplan, the queen of exotic and interesting new fruits and vegetables, and a California food wholesaler, is in Toronto to brighten the dull, cold winter with California sunshine. This year her company hopes to ring up $10 million in gross sales.

According to Kaplan, trends in the U.S. are towards fresh herbs and tofu, and away from salt.

Nearly half of the 10,000 letters Caplan receives each year come from consumers who want "to know more about tofu, the Orient's soybean cake, and how to use it.

"Tofu is available in many Toronto supermarkets." A 500-gram package of Victor Food Products' tofu, containing four slices packed in water, retails for $1.19 at A&P.

Karen Kaplan, Frieda's daughter (age 26), who is in charge of developing recipes for the company's line of exotic foods, prefers to treat tofu simply–by broiling it.

Cut slices about 3/4 inch thick, brush with soy or teriyaki sauce, and place beneath the broiler on an oiled pan. Broil until nicely browned and crusty, then turn to brown the other side.

Before broiling the 2nd side, you may want to "top it with a slice of mozzarella cheese (though this works better without the brushed-on sauces). Broil until the cheese is melted."

A photo shows Kaplan tasting a Mexican carob pod. Address: Food editor.

1382. MacLeod, J.A.; Sterling, J.D.E. 1982. Soybean technology transfer. *Research Station Charlottetown, P.E.I., Research Summary* For the year 1981. See p. 140. (Agriculture Canada Research Branch).
• ***Summary:*** "Maple Amber soybeans have adequate maturity and good yield potential for many areas of the Atlantic Region. Maple Amber, a new soybean variety form the Ottawa breeding program was compared to Maple Presto on two farms in 1981 under the technological transfer program. Maple Amber matured about seven days later than Maple Presto in 1981 and it gave an excellent yield at one location and a satisfactory yield at the second location."

George MacMurdo planted his soybeans at Kelvin on May 28 and harvested them on Oct. 16. He obtained a yield of 3,028 kg/ha from Maple Amber and 2,337 kg/ha from Maple Presto. Address: Prince Edward Island, Canada.

1383. Ontario Soya-Bean Growers' Marketing Board. 1982. Canadian soybean mission to Japan, Korea, Singapore, Hong Kong, Malaysia. Chatham, Ontario, Canada. 12 p. Feb. 24 x 11 cm. [Eng; jap; kor]
• ***Summary:*** Small portrait photos (p. 2) show mission members: P. Epp, B. Calhoun, A. Ford, O. McGregor, Michael Loh, Dr. R. Buzzell, M. Pennell. The first four men are from the Ontario Soya-Bean Growers' Marketing Board. Address: P.O. Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

1384. Ontario Soya-Bean Growers' Marketing Board. 1982. Canadian soyabean mission, South East Asia, Feb. 12th–27th, 1982: Mission member reports. Chatham, Ontario: Ontario Soya-Bean Growers' Marketing Board. 12 p. Feb. 24 x 11 cm. [Eng]
• ***Summary:*** Contents: Comments, by Peter H. Epp, Chairman. Japan: Home Shokuhin Tofu Manufacturing Co., Komatsuya Shokuhin (natto mfg. plant), Nihon Miso (manufacturing plant), Japan Miso Assoc., Japan Tofu Assoc., Federation of Japan Natto Manufacturers' Cooperative Society, Wako Shokuryo Co. (makes natto; Jacob Hartz in Arkansas supplies them with "936X" variety small-sized natto soybeans; Wako also supplies Nihon Miso Mfg. Plant), X-Can Far East Ltd. Korea: Seoul meeting at embassy, Chung's Food Ltd., Agriculture and Fisheries Development Corp., Korean Soybean Curd Cooperative Manufacturing Assoc. Singapore: Okura & Company Ltd., Eng Huat Pte. Ltd., Intraco. Malaysia: Yeo Hiap Seng Co. Ltd. (the largest manufacturer of soymilk in Malaysia and Singapore). Follow-up. Conclusion.

Each of the following members of the mission wrote a chapter in this book, discussing each visit mentioned in the contents: Peter H. Epp, Bernard Calhoun, Otis McGregor, Richard I. Buzzell, M.D. Pennell (General Manager, R&D, H.J. Heinz Company of Canada Ltd.), Michael Loh (Export Development Specialist, Ontario Ministry of Agriculture and Food).

Details are given on the soybean characteristics desired for each type of soyfood product, especially in the chapter by Dr. Buzzell. Popular soybean varieties include: For Miso: Enlei [Enrei], Fujimejiro, Harcor. For natto: Jizuka, Suzuhime, Nattawa. For tofu: Amsoy, Coles, Harcor.

Letter from Fred Brandenburg of OSGMB. 1994. Nov. 9. "Regarding export promotion before 1982, any activities would have been part of larger government sponsored trade missions. For example, in 1979 Otis McGregor participated in a mission to Asia which was co-ordinated by Michael Loh. It included a number of marketing boards and associations from Canada."

Note: This is the earliest document seen (Dec. 1998) that (apparently) mentions the soybean variety Enrei. Address: P.O. Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

1385. **Product Name:** Marinated Tofu Cutlets.
**Manufacturer's Name:** Sooke Soy Foods.
**Manufacturer's Address:** Sooke, BC, Canada V0S 1N0.
**Date of Introduction:** 1982. February.
**Ingredients:** Tofu (organic soybeans, water, nigari [magnesium chloride–an extract of sea water]), soy sauce, garlic, ginger, cayenne, black pepper.
**Wt/Vol., Packaging, Price:** 10 oz / 284 gm.
**How Stored:** Refrigerated.
**Nutrition:** Per 100 gm: Calories 104, protein 12 gm, carbohydrates 3.4 gm, fat 8.2 gm.
**New Product–Documentation:** Label. 1988, received. 6 by 4.5 inches. Yellow, green, blue and white on clear plastic film. "Ready to serve–Hot or cold. For snacks, sandwiches, or as a main course. A good source of protein. No preservatives."

1386. Tsukamoto, J.Y. 1982. Soybean production in western Canada. Paper presented at the 37th Annual Meeting of the Expert Committee on Grain Breeding (ECGB). 10 p. Held 16 Feb. 1982.
• ***Summary:*** "The commercial scale production of soybeans in Western Canada was limited primarily to Manitoba because of a lack of markets for soybeans in both Saskatchewan and Alberta... According to the cooperators' estimated yields, a total of about 32,500 bushels (884.7 tonnes) was produced in the Agro-Man soybean production demonstration, for which McCall yielded an average of 22 bushels per acre (1480 kg/ha) and Maple Presto yielded about 14.5 bushels per acre (975 kg/ha) (See Table 1)...

"Cargill Grain Company Limited reported that they had three major contracts for the commercial production of soybeans using the variety McCall. The fields ranged in size from 150 acres (61 ha) to 500 acres (202 ha). Yields ranged from 22 bushels per acre (1,480 kg/ha) at Morden to 32 bushels per acre (2,152 kg/ha) in the Emerson and Portage la Prairie areas...

"There also was some production of soybeans not for crushing but for human consumption. It is estimated a total of approximately 4,500 acres (1,821 ha) of soybeans were grown in Manitoba in 1981." Address: Manitoba Agriculture.

1387. Wilcox, J.R. comp. 1982. The Uniform Soybean Tests, northern states, 1981. West Lafayette, Indiana: Science and Education Administration, USDA. 208 p. 28 cm.
• ***Summary:*** Near bottom of title page: "United States Department of Agriculture. Science and Education Administration, cooperating with State Agricultural Experiment Stations."

Contents: Introduction. Uniform Test participants–1981. Strain designation. Methods–1981. Disease. Policy on testing and release of strains. Uniform test strains released in 1981. Uniform test locations–1981. Identification of parent strains. Uniform test 00. Uniform test 0. Uniform test I. Preliminary test I. Uniform test II. Preliminary test IIA. Preliminary test IIB. Uniform test III. Preliminary test IIIA. Preliminary test IIIB. Uniform test IV. Preliminary test IV.

Note: Harvey D. Voldeng, Ottawa Research Station, Ottawa, Ontario, Canada, is now the northernmost participant in Ottawa, Canada. Address: USDA-ARS, Agronomy Dep., Room 2-307 Lilly Hall, Purdue Univ., West Lafayette, Indiana 47907. Phone: 317-744-8074.

1388. **Product Name:** [Soyabec Baked Tofu Roti].
**Manufacturer's Name:** Les Alimentents Soyabec Inc. (Importer). Made in Miami, Florida, by Swan Gardens.
**Manufacturer's Address:** 1215 Boulevard St. Joseph, Montreal, QUE, H2J 3K1, Canada.
**Date of Introduction:** 1982. March.
**Ingredients:** Eau, feves de soya, sauce soya (feves de soya, ble entier, sel de mer), epices, sulfate de calcium.
**Wt/Vol., Packaging, Price:** 227 g vacuum packed.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Yvon Tremblay and Richard Milon. 1987. Dec. 11. *Roti* means "A roast."

1389. **Product Name:** [Soyabec Tofu].
**Foreign Name:** Soyabec Tofu.
**Manufacturer's Name:** Les Alimentents Soyabec Inc. (Importer). Made in Miami, Florida, by Swan Gardens.
**Manufacturer's Address:** 1215 Boulevard St. Joseph, Montreal, QUE, H2J 3K1, Canada.
**Date of Introduction:** 1982. March.
**Ingredients:** Eau, feves de soya, sulfate de calcium.
**Wt/Vol., Packaging, Price:** 454 gm vacuum packed.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Yvon Tremblay and Richard Milon. 1987. Dec. 11. They imported the tofu by air freight 3,000 lb at a time, then delivered it to stores. It was the first vacuum packed tofu in Quebec. Soyabec stopped operations in early 1983. They had no money left to import. Transportation costs had increased and the U.S. dollar had become more expensive.

1390. **Product Name:** [Tofu Salad].
**Foreign Name:** Salad au Tofu.
**Manufacturer's Name:** Les Aliments Soyabec Inc.
**Manufacturer's Address:** Montreal, QUE, H2J 3K1, Canada. Phone: 514-276-9570.
**Date of Introduction:** 1982. March.
**Ingredients:** Tofu, shallots (échalotes), celery, carrot, parsley, mustard, sunflowerseed oil (huile d'tournesol), turmeric (curcuma), thyme, basil, chervil (cerfeuil), salt, pepper, garlic, salty-tasting herbs (herbes salees).
**Wt/Vol., Packaging, Price:** 250 gm plastic tub.
**How Stored:** Refrigerated.
**New Product–Documentation:** From Yvon Tremblay and La Magie du Tofu. In six years he served at least 100,000 samples. Sold about 500 lb/week.

1391. Tremblay, Yvon; Boyte, Frances. 1982. La magie du tofu: 80 recettes simples et économiques [The magic of tofu: 80 simple and economical recipes]. Montreal and Paris: Stanke Ltee. 101 p. Illust. No index. 22 cm. [Fre]
• ***Summary:*** Contents: Preface. The health advantages of tofu. Preparation of tofu. 1. Hors-d'oeuvres. 2. Soups. 3. Salads. 4. Sauces. 5. Main dishes. 6. Desserts. Address: 1. Chef, Montreal, QUE, Canada; 2. Dietitian.

1392. Bourbonnais, Josette. 1982. Tofu. L'aliment de l'avenir [Tofu. The food of the future]. *Dimanche-Matin (Quebec, Canada)*. April 4. p. B30. [Fre]
• ***Summary:*** About the new book *La Magie du Tofu*, by Yvon Tremblay and Frances Boyte. Address: Canada.

1393. Rowan, Renee. 1982. Le "tofu", l'or blanc des années 80 [Tofu, the white gold of the '80s]. *Devoir (Le) (Quebec, Canada)*. April 7. p. 13. [Fre]
• ***Summary:*** Discusses Yvon Tremblay and his new book La Magie du Tofu. He has been a specialist in vegetarian cuisine for 10 years. Address: Canada.

1394. Griffith, G.R.; Meilke, K.D. 1982. A structural econometric model of the world markets for rapeseed, soybeans and their products. *University of Guelph, School of Agricultural Economics and Extension Education, Publication* AEEE/82/5. 136 p. April. [157 ref] Address: Guelph, Ontario.

1395. **Product Name:** [Horium Tofu].
**Foreign Name:** Tofu Horium.
**Manufacturer's Name:** Les Aliments Horium Foods Inc.
**Manufacturer's Address:** 1050 rue Lacasse Street, C1-18, Montreal, QUE, H4C 2Z3, Canada. Phone: 514-933-4605.
**Date of Introduction:** 1982. April.
**Ingredients:** Organic soybeans, natural salt or sea salt, purified water.
**Wt/Vol., Packaging, Price:** 450 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Yvon Tremblay and Richard Milon. 1987. Dec. 11. Form filled out by Mr. Chong-Hong Ho, owner. 1988. Nov. 11. The product was launched in April 1982. Label. 5 by 7 inches. Red, green, and black on white. In French and English. "All natural. After removing package, submerge tofu completely in cold water and change it regularly."

1396. **Product Name:** [Soya Yogurt (Organic)].
**Foreign Name:** Yogourt de Soya (Organique).
**Manufacturer's Name:** Les Aliments Horium Foods Inc.
**Manufacturer's Address:** 1050 rue Lacasse Street, C1-18, Montreal, QUE, H4C 2Z3, Canada. Phone: 514-933-4605.
**Date of Introduction:** 1982. April.
**Ingredients:** Soyabean, water, sugar, flavour.
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 1988, received. 5.5 by 2.5 inches. Red and blue on white. In French and English.

1397. **Product Name:** [Organic Soya Drink].
**Foreign Name:** Boisson de Soya Organique.
**Manufacturer's Name:** Les Aliments Horium Foods Inc.
**Manufacturer's Address:** 1050 rue Lacasse Street, C1-18, Montreal, QUE, H4C 2Z3, Canada. Phone: 514-933-4605.
**Date of Introduction:** 1982. April.
**Ingredients:** Extract of Soyabean, water.
**How Stored:** Refrigerated.
**Nutrition:** Per 100 gm.: Calories 25, protein 4.4 gm, carbohydrate 3.4 gm, fat 2.5 gm, water 88.6 gm.
**New Product–Documentation:** Label. 1988, received. 5.5 by 2.5 inches. Red and blue on white. In French and English.

1398. Leviton, Richard. 1982. On the road for the fast food burger: A soy deli odyssey. *Vegetarian Times* No. 56. April. p. 62-65.
• ***Summary:*** Includes visits to and detailed descriptions of the ambience and menu at: The Well Bean Deli in Santa Cruz, California (Kevin Van Slooten), Real Food Tofu Cafe in Redwood Valley, California (Dik & Sharon Rose), The Tofu Shop in Arcata, California (Matthew & Susanne Schmit), South Fork Tofu Cafe in Helena, Montana (Bruce Anfinson, Vicki Keller, and Richard Saravalli), The Good Nature Deli in Oak Park, Illinois (Kevin O'Brien and Mary Ellen Sackett), The Soy Plant Deli in Ann Arbor, Michigan (a co-op), Hip Pocket Tofu Deli in Columbus, Ohio (Bill Lutz), Nature's Grace in Honesdale, Pennsylvania (Jamie and Nancy Stunkard), Lotos Cafe in Rochester, New York (Greg Weaver), Soyateria in Toronto, Ontario (owned by Soy City Foods), Mintz's Buffet in New York City (David Mintz), and Everybody's Vegetarian Restaurant in Nashville, Tennessee (run by The Farm).

At Mintz's Buffet (1040 Third Ave., 10021) "David Mintz would like to stuff the Big Apple with savory tofu, judging by the enthusiasm with which he embraced tofu a year ago in his traditional Jewish kosher deli and catering company. Mintz added tofu to his line of 'soup to nuts, old time foods like Grandma used to make, a big menu,' and placed tofu vegetable pies and tofu ice cream proudly next to the gefilte fish, chopped livers and matzoh balls. Located on New York's upper east side near Bloomingdale's, Mintz's (which seats 15) receives celebrities and ordinary folk alike, people who are drawn to its special 'Mintz's Tofu Buffet of Vegetable Quiches,' Tofu Vegetable Pies, Tofu Vegetable Salads (for instance, steamed broccoli with tofu mustard sauce), Tofu Egg Rolls, Tofu Blintzes, Tofu Bran Muffins (strawberry-rhubarb, apple-walnut, blueberry-bran, carrot-apple, pecan, lemon-granola, pineapple-coconut and cherry-granola), Soy Burgers and Soy Pizza. Before we glide out of Mintz's soy emporium on a cloud of soybeans, we must sample his renowned Tofu Ice Kream (also called *Tofutti)* made from tofu, soymilk, fresh fruit, essences of apples, figs and raisins, honey, egg whites, soy oil–'creamy and delicious, it's beyond cream.'" Address: 100 Heath Rd., Colrain, Massachusetts 01340. Phone: 413-624-5591.

1399. Shurtleff, William; Aoyagi, Akiko. 1982. Survey of tofu production in the United States and Canada. Lafayette, California. 1 p. April. Unpublished manuscript.

• ***Summary:*** This is a typewritten table with 8 columns: The three main ones are (1) Company name. (2) Date started operations. (3) Tofu production in April 1982 (in 1,000 lb/week). Companies are arranged in descending order of tofu production.

Hinode Tofu Co. (Los Angeles, California; 1937?). 140.
Azumaya, Inc. (South San Francisco, California; 1920?). 110.
Aloha Tofu Co. (Honolulu, Hawaii; 1950?). 60.
Quong Hop & Co. (South San Francisco, California; 1906). 43.
England Soy Dairy (Greenfield, Massachusetts; Jan. 1977). 36.
C.R. Food (Los Angeles, California; April 1979). 28.5.
Wy Ky (Los Angeles, California; July 1970). 28.
Wo Chong & Co. (San Francisco, California; 1928). 24.
Kanai Tofu Factory (Hawaii; 1923). 16.
Traditional Tofu (Oakland, California; 1978?). 17.
Mighty Soy, Inc. (Los Angeles, California; Aug. 1980). 16.6.
Eastern Foods Corp. (Minneapolis, Minnesota). 15.
Panda Food Products (Woodhaven, New York; 1981). 15.
Nasoya Foods (Leominster, Massachusetts; April 1978). 12.
Island Spring (Vashon, Washington; Dec. 1976). 12.
Swan Gardens (Miami, Florida). 12.
Sam Sung Food Inc. (Washington, DC; 1980). 11.
Ota Tofu Co. (Portland, Oregon; 1919). 10.4.
Victor Food Products (Scarborough, Ontario, Canada; Feb. 1978). 10.
Hashizume Food Products (New York City, New York; 1969). 10.
Soyfoods of America (Duarte, California; 1981?). 10.
White Wave (Boulder, Colorado; Sept. 1977). 9.
The Soy Plant (Ann Arbor, Michigan; Sept. 1977). 7.
Chicago Tofu Co. (Chicago, Illinois; 1960). 6.
Nomura Tofu Co. (Chicago, Illinois; 1975). 6.
Northern Soy (Rochester, New York; May 1977). 6.

Address: New-Age Foods Study Center, P.O. Box 234, Lafayette, California 94549.

1400. *Soybean News.*1982. Pioneer developer of soybeans for the North deceased. Dr. Sven A. Holmberg. 33(3):4. April.

• ***Summary:*** Dr. Holmberg, Head of the Holmberg Soybean Breeding Institute at Fiskeby, Norrköping, Sweden, passed away on 10 Nov. 1981 at the age of almost 88 years.

In the 1930s he had become interested in the soybean and speculated about its possibilities in Sweden. In 1938 he studied soybean breeding in the USA, and in 1939-40 he made his first expedition to Japan and Sakhalin. In the severely cold climate of the Hokkaido islands he found soybean types which he considered valuable for breeding in Sweden. In 15 years he developed strains which matured

Dr. Sven A. Holmberg†

and yielded comparatively well in middle Sweden, where Fiskeby is located. In 1957 he returned to the Far East [East Asia] to collect more material. In 1970, when almost 70 years old, he made a third expedition to Siberia and Japan. "In the meantime he studied soybean breeding in the USA and Canada. He learned that his breeding material was successfully used in North American programs. Dr. Holmberg cooperated and counseled with Dr. J.W. Lambert, soybean breeder, University of Minnesota.

"The most interesting [and commercially important] varieties bred by Dr. Holmberg are Fiskeby V, Brävalla, and Träff. Although other promising varieties are in early stages of development, it is anticipated it will take 15 to 20 more years for soybeans to reach major crop status in Swedish agriculture according to a friend. The intention of Dr. Holmberg was to make the crop food for man.

"A friend has written 'Sven Holmberg has done the fundamental work with soya bean for Northern Europe. The inheritors of his material and his ideas will have to fulfill his work. This is the best way to honor the man who devoted himself so enthusiastically and so intelligently to the breeding of soya bean in the North.'"

A photo shows Sven A. Holmberg in his later years, standing in a field of soybeans. He is facing the camera, wearing a long black coat, holding a sheaf of papers in his left hand and a cane in his right

1401. Voldeng, Harvey D.; Seitzer, J.F.; Donovan, L.S. 1982. Maple Presto soybeans. *Canadian J. of Plant Science* 62(2):501-03. April.

• ***Summary:*** Contents: Introduction. Pedigree and breeding methods. Performance. Other characteristics. Pedigree seed stocks. "Maple Presto is the earliest maturing soybean cultivar licensed in Canada. It combines with earliness the attributes of high oil content in the seeds, resistance to lodging and shattering, and adequate plant height." It was "developed by the Agriculture Canada Research Station, Ottawa, Ontario, with the cooperation of the Research Station at Brandon, Manitoba." "Maple Presto can mature with as few as 2200 corn heat units from planting to maturity.

"Pedigree and breeding methods: Maple Presto originated at the Ottawa Research Station in 1974 as an F-4 plant selection from the cross of line 840-7-3 and an F-1 plant of the cross Portage x Amsoy. Line 840-7-3 is a selection of very early maturity obtained from Dr. Sven Holmberg, Norrkoping, Sweden."

"License No. 1906 was issued for Maple Presto on 7 March 1979 by the Plant Products Division, Production and Marketing Branch, Agriculture Canada.

"Performance: Maple Presto matured 17 and 18 days earlier than McCall and Maple Arrow in Ontario and produced about 70% of the seed yield of the later maturing cultivars (Table 1). Plans of Maple Presto were shorter by 6 and 10 cm than those of McCall and Maple Arrow, respectively."

Note: This is the earliest maturing soybean variety whose name begins with the word "Maple."

Talk with Ted Hymowitz. 1998. Oct. 8. Ted went to Canada last week and visited with Harvey Voldeng, who developed this variety. Dr. Voldeng told Ted that the word "Maple" comes from the name of the road that runs past their experimental farm. Hilarious! Address: Research Station, Agriculture Canada, Ottawa, Ontario K1A 0C6, Canada.

1402. Bernard, Richard L. 1982. Re: Major varieties of vegetable type soybeans: Place and year released, and ancestry. Letter to William Shurtleff at Soyfoods Center, May 15. 1 p.

• ***Summary:*** This handwritten table has five columns: Variety–Maturity Group–Breeder–Year Released–Ancestry.

Kim–III–Iowa State Univ., USDA & Weber–1956–Richland x Sac-2.

Kanrich–III–Iowa State Univ., USDA & Weber–1956–Kanro-2 x Richland.

Disoy–I–Iowa State Univ., USDA & Weber–1967–(Ottawa Mandarin x Kanro) x (Richland x Jogun).

Magna–II–Iowa State Univ., USDA & Weber–1967–(Ottawa Mandarin x Jogun) x (Ottawa Mandarin x Kanro).

Verde–III–Univ. of Delaware & Crittenden–1967–Aoda x (Richland x Jogun).

Kahala–IV–Univ. of Hawaii–1969–(Hawkeye x FC33243) x Bansei.

Kaikoo–IV–Univ. of Hawaii–1969–(Hawkeye x FC33243) x Bansei.

Kailua–IV–Univ. of Hawaii–1969–(Hawkeye x FC33243) x Bansei.

Mokapu Summer–IV–Univ. of Hawaii & J.C. Gilbert–1969–(Hawkeye x FC33243) x Bansei.

Prize–II–Iowa State Univ. & Weber–Pre-1973–Unknown.

Emerald–IV–Univ. of Delaware & Crittenden–1975–Aoda x (Hahto x Kent).

Grande–0–Univ. of Minnesota & Lambert–1976–Anoka x Magna.

Vinton–I–Iowa State Univ. & Fehr–1977–Hark x [Provar x (Disoy x Magna)].

Vinton 81–I–Iowa State Univ. & Fehr–1981–(Harosoy x Higan) x Vinton-5.

This information is published in registration articles in *Crop Science*, usually during the year or two after release, except for the Hawaiian varieties which were announced in *HortScience* 5(3):146-49. June 1970. Also described in Hawaiian Agricultural Experiment Station Report 178 (undated).

Update: 1997 Jan. 1. Dr. Bernard enjoys eating green vegetable soybeans. When they are fresh, in season, he

freezes large amounts of them in small plastic bags. Then each day of the year, he pulls one bag out of his freezer, boils them, and enjoys them for lunch with his sandwich made of whole-grain bread. He is one of the few soybean breeders or agronomists who enjoys soyfoods! He does not drink alcohol, makes a sincere effort to eat a healthy diet, and loves to dance–sometimes every night. Address: Prof. of Plant Genetics, Dep. of Agronomy, Univ. of Illinois, Urbana, IL 61801.

1403. *Medical World News.*1982. Subbing soy drinks for milk cuts high lipids. 23(12):61. June 7. [1 ref]
• ***Summary:*** High cholesterol levels can be lowered by substituting a soy protein extract for some dietary source of animal protein–according to study director Kenneth K. Carroll (Dep. of Biochemistry, Univ. of Western Ontario, London, ONT, N6A 5C1, Canada). Replacing cow's milk with a soy-protein preparation for 6 weeks reduced plasma cholesterol levels in 5 of 33 subjects with abnormally high initial cholesterol levels. The drinks each contained the same amount of butterfat and calories. Similar replacement of meat or eggs would be possible.

1404. Muendel, H.-H. 1982. Developing soybeans for Alberta. *Agriculture Canada Research Station, Lethbridge, Weekly Letter* No. 2521. June 9. 1 p.
• ***Summary:*** "The development of improved soybean varieties and agronomic practices should make soybean production a practical reality on irrigated farms in southern Alberta. At the Lethbridge Research Station we are working with other federal and provincial researchers to adapt soybeans to our short, cool growing season. As energy costs increase, soybeans will become more important as an energy efficient crop. Soybeans can use atmospheric nitrogen, instead of commercial fertilizer, and much of this 'free' nitrogen is added to the soil, reducing fertilizer needs of the next crop.

"The variety Maple Amber, released in 1981 by the Ottawa Research Station in cooperation with western research stations, resulted in a 25 percent yield increase over the early maturing Maple Presto. Maple Amber matures easily in southern Alberta, has oil levels equal to Maple Presto and a higher level of seed protein...

"We found that delaying seeding until the soil temperature at seed level is above 10ºC will improve yields in southern Alberta. However, seeding should be completed by May 20.

"A few growers in southern Alberta have achieved soybean yields exceeding 2,000 kilograms per hectare (about 32 bushels per acre). It should be possible with improved production practices now available to increase the yield to about 2,124 kg/ha (40 bushels/acre)." Address: New Crops, Lethbridge, ALB, Canada.

1405. American Soybean Association. 1982. Soya Bluebook '82. St. Louis, Missouri: American Soybean Assoc. 212 p. June. Index. Index to advertisers. 22 cm.
• ***Summary:*** Contents: Organizations: American Soybean Association, National Soybean Processors Association, Food Protein Council, Ontario Soya-Bean Growers Marketing Board, State Research Experiment Stations, United States Department of Agriculture, Foreign Agricultural Service, Government Buying Agencies.

Soy product directory: U.S. oil extraction plants / refineries, non-U.S. oil extraction plants / refineries, soyfoods manufacturers, industrial product manufacturers, exporters.

Buyer's guide to products & services: Category listings, commercial equipment & supplies, soy product processing equipment & supplies, farm equipment & supplies, commercial services, manufacturers & suppliers guide.

Soy statistics: Charts [graphs], maps, tables, metric conversion, glossary of soybean terms, United States standards for soybeans.

Indexes: Directory (alphabetical company listings), buyer's guide (alphabetical company listings), advertisers.

After p. 162 are two beautiful color fold-out maps, based on USDA figures as of spring 1980. (1) 1979 U.S. soybean production (bushels) by county. The color coding shows clearly that counties along the Mississippi River and in Illinois produce the most soybeans–more than 10 million bushels per county, in red (2) 1979 soybean acreage by county. The greatest acreage is found in the red counties having more than 150,000 acres planted to soybeans. Address: P.O. Box 27300, St. Louis, Missouri 63141. Phone: 314-432-1600.

1406. Check, William A. 1982. Switch to soy protein for boring but healthful diet. *J. of the American Medical Assoc.* 247(22):3045-46. June. 11. [3 ref]

1407. White, Jim. 1982. Restaurant busts spiral as depression hits home. *Toronto Star (Ontario, Canada).* July 7. p. C14.
• ***Summary:*** A year ago many new restaurants were opening in Toronto. Among those already gone from the local food scene is "the tofu palace Soja (Kensington Market)."

"The depression (you can call it a recession all you want to, but when 1.25 million Canadians are on the pogey [welfare, dole], I call it a depression) has really hit the restaurant trade hard." Address: Food editor.

1408. Durnford, Nancy. 1982. There's no cream in Ice Bean. *Gazette (The) (Montreal, Quebec, Canada).* July 28.
• ***Summary:*** "With the arrival of Ice Bean, virtually every Montrealer can lick or spoon a frozen confection. Ice Bean, an ice cream-like dessert, contains no cream or milk solids and is suitable for anyone on a cholesterol-restricted diet or

for those allergic to cow's milk. It is also low in calories. A three-ounce serving of the soybean based dessert contains 66 calories compared to more than 200 calories for a similar portion of ice cream.

"Salt-free and sweetened with honey, the creamy-smooth Ice Bean is packaged in two sizes and five flavors. The one-pound containers are available in three flavors: Carob, vanilla and mocha. Individual portions or three-ounce sizes come in those flavors plus Orange Sunshine, containing orange juice concentrate, and Dutch Chocolate, made with cocoa."

1409. **Product Name:** Vegi-Patties (Meatless Burgers). **Manufacturer's Name:** Lifestream Natural Foods Ltd. **Manufacturer's Address:** Richmond, BC, Canada V6V 1J7.
**Date of Introduction:** 1982. July.
**Ingredients:** Textured soya flour, wheat gluten, safflower oil, whole wheat bread crumbs, tomato paste, dried vegetables, oat flour, pea flour, tamari, sunflower seeds, sesame seeds, nutritional yeast.
**Wt/Vol., Packaging, Price:** Four 3-ounce burgers per box.
**How Stored:** Frozen.
**Nutrition:** Per 3-oz. pattie: 230 calories, 15 gm protein, 17 gm carbohydrate, 13 gm fat, 485 mg sodium.
**New Product–Documentation:** Spot in Soyfoods. 1982. Summer. p. 55. "All vegetable meat substitute." Spot in Adweek East. 1987. April 6. All vegetable meat substitute. Label. 1987 (undated). Box 8.5 by 4.5 by 1 inch. Color illustration of burger on lettuce and tomatoes. "All vegetable meat substitute made with textured soy flour. An exciting new way to cook. Look for recipe ideas on back." Cheese and Spinach Casserole. Spaghetti Sauce with Vegi-Balls.

1410. Ablett, G.R. 1982. An introduction to soybeans. *Notes on Agriculture (Guelph, Ontario)* 18(1):9-10. Aug.
• ***Summary:*** Soybeans are presently one of the most important cultivated crops. The can be grown from the equator to latitudes of 50º or more (around Winnipeg in Manitoba, Canada). In 1978 some 80.450 million metric tons (tonnes) of soybeans were produced on over 50 million hectares of land.

Tables show: (1) The world's leading soybean producing countries in 1968 and 1978. In 1978 they were (in million tonnes): USA 50.9 (60% of the world total). China 10.5. Brazil 10.5. Argentina 3.8. USSR 0.640. Indonesia 0.523. Canada 0.520. South Korea 0.319. World total 80.450. Source: *Commodity Year Book 1980*, by Commodity Research Bureau, Inc.

(2) Soybean hectarage, yield and production, 1941-1980 in five year averages in Ontario. Source: *Agricultural Statistics for Ontario*, OMAF, Publication 20. Address: Ridgetown College of Agricultural Technology, Ridgetown, ONT, Canada.

1411. Adolphe, D. 1982. Canola–Canada's no. 1 oilseed. *Notes on Agriculture (Guelph, Ontario)* 18(1):5-7. Aug.
• ***Summary:*** "'Canola' is the term now applied to those special modern rapeseed varieties with five percent or less erucic acid and three milligrams per gram or less glucosinalates, measured normally. The name refers to the seed, oil, meal, protein extractions and seed hulls, from, or of, varieties known in the industry as 'double low' rapeseed.

"History suggests that rapeseed was cultivated as early as the 20th century B.C. in India and was introduced to China and Japan at about the time of Christ."

"Ancient civilizations in Asia and along the Mediterranean used rapeseed oil for lighting [illumination] because it produced a smokeless white flame.

"Rapeseed was grown in Europe as early as the 13th Century and during later centuries developed acceptance for both cooking and lighting."

In Canada, commercial rapeseed production began in 1943 following the blockade of Asian and European sources of rapeseed oil in the early 1940s [during World War II]. The oil was urgently needed as a lubricant for the rapidly increasing number of marine engines in naval and merchant ships. Since the early 1960s rapeseed acreage has increased dramatically in Western Canada and spread across the three prairie provinces. Canola was developed in Canada in the 1970s.

"Canola is used entirely for its oil and protein content. It contains 40 percent oil by weight. Rapeseed oil was limited to industrial uses until 1958 when it was classed as an edible oil for human consumption in Canada.

"Canola is the greatest supplier of vegetable oil to the Canadian market. In 1980, Canola oil accounted for 46.8 percent of the edible oil market and soybean oil 31.9 percent."

"Canola oil is used mainly in the production of margarines, shortenings, and salad oils."

"The most popular use of canola oil is in cooking and salad oils..."

Note: This is the earliest document seen (Jan. 2005) that mentions "canola oil." Address: Canola Council of Canada, 301-433 Main St., Winnipeg, Manitoba, R3B 1B3, Canada.

1412. deMan, J.M. 1982. Vegetable oils in the food supply. *Notes on Agriculture (Guelph, Ontario)* 18(1):28-29. Aug.
• ***Summary:*** "A biological hydrogenation process occurs in the rumen of the cow and ruminant milk fat contains fairly large quantities of *trans* isomers." Address: Dep. of Food Science, Ontario Agricultural College, Univ. of Guelph, ONT, Canada.

1413. Hume, D.J. 1982. Soybean production. *Notes on Agriculture (Guelph, Ontario)* 18(1):11-12. Aug.
• ***Summary:*** Contents: Adaptation. Soils and land preparation. Crop rotation. Varieties. Inoculation. Weed control. Seeding practice. Fertilizer. Disease and pest control. Harvest practices. Farm storage. Address: Crop Science Dep., Ontario Agricultural College, Univ. of Guelph, ONT, Canada.

1414. McGregor, Otis. 1982. Soybeans–The human consumption approach. *Notes on Agriculture (Guelph, Ontario)* 18(1):13-14. Aug.
• ***Summary:*** "In 1974 the Ontario Soya-bean Growers' Marketing Board launched a program directed to the human consumption market... In 1974 the Ontario soybean export market represented a single shipment of white hilum soybeans to Japan for processing into tofu, miso and natto. Today tofu and miso are becoming popular in Ontario.

"Since 1975 the Ontario Soy-Bean Board has experienced remarkable success in moving soybeans into the human consumption market and the diets of Canadians. Two cookbooks have been printed by the Board and distribution has exceeded 70,000. Tofu shops have emerged in Ontario, to the extent that franchising is in the offing. Toronto has restaurants serving soybean meals... Today, the Ontario Soya-Bean Growers' Marketing Board actively promotes whole soybeans in one pound bags in various supermarkets." Address: Ontario Soya-bean Growers' Marketing Board, Chatham, ONT, Canada.

1415. Moorman, Michael. 1982. Ice cream: Another soy surprise. *Bestways.* Aug. p. 78, 81. [2 ref]
• ***Summary:*** Describes The Farm's work with soy ice cream in the USA, Guatemala, and Haiti, and their soy dairy in Lesotho. "Plenty, the relief organization of the Farm community based in Summertown, Tennessee, built a village soy dairy and tofu shop in Solola, Guatemala, with the help of local Indians and funding from the Canadian International Development Agency, UNICEF, and Plenty donations. In February, 1980, the Solola soy dairy began production and started selling soy ice cream and tofu from the dairy and in the local market place. The soy dairy is currently operated by local people trained by Plenty technicians. Free soy ice cream is distributed to poor and undernourished children through the nearby schools...

"Plenty technicians also went to Haiti and worked with Mother Teresa's Sisters of Charity. They made soy milk ice cream there for malnourished children. After training some of the people in how to use soybeans, they left equipment for them–including an ice cream machine–so they could continue on their own...

"Another arm of Plenty is reaching out to Lesotho, South Africa, where technicians are building a Village Technology Center. One of the stone huts of the Center will be used as a soy demonstration kitchen, where local villagers will be taught how to process soybeans at home. Plenty's projects are just one example of how soyfoods can be introduced into a foreign culture."

Four recipes are given for homemade soy ice cream, each based on soymilk. Note: This is an early document concerning soybean products (soy ice cream) in Lesotho. Address: Production Manager, Farm Foods, Summertown, Tennessee.

1416. Vinall, Geo. H. 1982. The processing and marketing of oil seeds in Ontario. *Notes on Agriculture (Guelph, Ontario)* 18(1):24-27. Aug.
• ***Summary:*** Begins with the early history of Canadian Vegetable Oil Processing (CVOP, the writer's company) in Hamilton, Ontario. Oilseed processing in Ontario started during World War II.

Note: Documents show that six companies started crushing soybeans to make oil and meal before 1940: (1) 1930 March–Milton Oil Refineries, Ltd., Milton. (2) 1932–Dominion Linseed Oil Co., Baden. (3) 1932–The Soya Bean Oil and Meal Co-operative Company of Canada Ltd., Chatham. (4) 1936–Edgar Soya Products, Ltd., Belle River. (5) 1936–Soya Mills Ltd., Stratford. (6) 1938–Toronto Elevators Ltd., Toronto.

From 1940 to 1942 Canada was finding it difficult to obtain enough vegetable oil to satisfy growing domestic demand. A good supply of ground nuts [peanuts] was located in India, Canada's war-time government then negotiated with an Australian (Sir Walter Carpenter) to move a small expeller (oil seed) processing plant from British Columbia to Ontario. In 1942 this plant, which had been processing copra (coconut) on a Vancouver dock side, was moved to the Hamilton harbour waterfront. Canada's federal government then arranged to have thousands of tons of peanuts (in jute bags) delivered to Hamilton for processing. From 1943 to 1948 peanut deliveries were intermittent and this other oilseeds such as sunflowers, flax, palm kernel and copra were crushed in Hamilton. After the war, the Hamilton plant began looking for a more local source of oilseeds and in 1948 began crushing American-grown soybeans.

"G.S. Boulter was the prime person in the transfer of the oilseed processing plant from Vancouver to Hamilton. In 1944 he left W.R. Carpenter and, starting that same year, was instrumental in building another oilseed crushing plant (Victory Mills Ltd.) in Toronto. Later in the 1940s a third plant was built by Toronto Elevators Ltd. (later Maple Leaf Mills Ltd.) in the Toronto harbour.

The plants that processed oilseeds during the 1940s used expellers to separate the oil from the seed.

In 1979 Maple Leaf Mills closed their Toronto Plant and relocated in Windsor, increasing their capacity by 1,200 tons per day.

"In 1967 the United Kingdom [UK] joined the E.E.C. which effectively cut off a market for Canadian soybean oil and meal. Up to that time Ontario crushers always had an alternative to the domestic market... Thus the application of duties by the UK effectively restricted soybean products (except in dire situations) to Canadian markets."

Tables show: (1) Current daily capacities (tonnes per day) for Ontario oilseed processors: Victory Mills Ltd., 1,360 soybeans. CVOP 1,200 soybeans + 600 soft seed. Maple Leaf Monarch 1,100 soybeans + 280 soft seed.

(3) Production of soybean oil and rapeseed oil, 1976-1981. Rapeseed oil figures were was always larger. (4) Consumption of soybean and rapeseed oils, 1976-1981–for margarine, shortening, salad oils and total. Address: Canadian Vegetable Oil Processing, Hamilton, ONT, Canada.

1417. Martin, Debra. 1982. 1000 years old and very new [Shin-Mei-Do Miso]. *Comox District Free Press (Canada).* Sept. 17. Friday.
• ***Summary:*** Six years ago, Lulu and her husband, Yoshi Yoshihara moved to Denman Island from Vancouver, where Yoshi worked as a projectionist for Pacific Cinemathique. He continued to commute from the Island to work, seeing his family only once a week–an arrangement that was not satisfactory. So they both decided to figure out a way to make a living on the island.

An idea came from a cookbook [The Book of Miso] she purchased in Seattle at a Japanese supermarket. They already knew about miso, so they tried making some small experimental batches at home. But they soon decided the only way to really learn the process would be from a Japanese master.

"Lulu took their four-year-old son and went off to Japan for eight months, staying with Yoshi's mother, and then with a family that operated a large miso factory in Iida City, located in a mountainous part of Japan with a climate similar to Denman Island's.

"She was fortunate to be taken under the wings of a miso master who had worked at the factory for 40 years and was in charge of the hand-made miso division there."

"This hands-on experience gave her an idea of what the koji should look like, taste like, and smell like, knowledge hard to gain from books.

Lulu and Yoshi started making miso in earnest from 1979. Photos show: (1) Yoshi standing by a stack of koji trays in sauna-like koji incubation room. (2) Lulu at her stove making miso soup. (3) Yoshi standing on a ladder by a wooden vat of miso, handing a pail down to Lulu. (4) Different Shin-Mei-Do miso products, packaged and bulk.

1418. **Product Name:** Dayspring Tofu, Deep-Fried Tofu, Soy Pudding, and Tofu Kit.
**Manufacturer's Name:** Dayspring Soyacraft Corporation.
**Manufacturer's Address:** 626 Esquimalt Rd., No. 5., P.O. Box 7285, Station D, Victoria, BC, V9A 3L4, Canada. Phone: 604-382-2144.
**Date of Introduction:** 1982. September.
**New Product–Documentation:** Form filled out by Michael and Paul Hsieh. ca. 1982. Soya Bluebook. 1986. p. 107.

1419. **Product Name:** Tofu.
**Manufacturer's Name:** Flying Dragon Foods.
**Manufacturer's Address:** 3311 8th St. E, Saskatoon, SASK, Canada S7H 4K1. Phone: 306-373-9040.
**Date of Introduction:** 1982. September.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1982. Sept. 17. Owner: Tak K. Sue.

1420. Leviton, Richard. 1982. In a small bright building: Cottage soy industries on Vancouver Island. Colrain, Massachusetts. 15 p. Sept. Unpublished typescript.
• ***Summary:*** Discusses Sooke Soyfoods (Wayne Jolley), Thistledown Soyfoods, Shin Mei Do Miso, and Metta Tofu. Note: This article was commissioned by *East West Journal* but never paid for or published. For a good summary, see: *Soyfoods.* 1983. Winter. p. 36-37. "Cottage soy industries thrive on Vancouver Island."

Concerning Shin Mei Do on Denman Island: Lulu Yoshihara recalls: In 1976 we picked up *The Book of Miso* at Uwjimaya department store in Seattle. It didn't look like it would be all that hard [to make miso] or take that much time or technology. Plus miso wasn't perishable and didn't need to be marketed right away. Ray [Lipovsky] was already here doing tofu and that gave us the idea we could do a little home soy business on the island and make a living. So I went to Japan in 1977 to find a miso teacher. We've been together since 1971. Address: Colrain, Massachusetts 01340.

1421. **Product Name:** Tofu.
**Manufacturer's Name:** Norman Leong Tofu.
**Manufacturer's Address:** 2031 53rd Ave., S.W., Calgary, ALB, Canada. Phone: 403-243-6531.
**Date of Introduction:** 1982. September.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1982. Sept. 17. Owner: Norman Leong.

1422. **Product Name:** Tofu.
**Manufacturer's Name:** Robert Richard Tofu.
**Manufacturer's Address:** Box 225, Rexton, NB, Canada E0A 2L0.
**Date of Introduction:** 1982. September.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1982. Sept. 17. Note: This is

the earliest commercial soy product seen made in New Brunswick province, Canada.

1423. **Product Name:** [Tofu].
**Foreign Name:** Tofu.
**Manufacturer's Name:** Tofu Quebec, Inc.
**Manufacturer's Address:** 451 47th St. E, Charlesbourg, QUE, Canada G1H2M7. Phone: 418-622-0471.
**Date of Introduction:** 1982. September.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1982. Sept. 17. Owner: Pierre Laflanne; Soyfoods Center Computerized Mailing List. 1983. June 20. Owners: Guy de Valter and Pierre la Flamme. The address is now 344 Rue St. Roch, Quebec, QUE, G1K 6S2, Canada. Phone: 418-525-7207.

1424. **Product Name:** [Tofu].
**Manufacturer's Name:** Unisoya, Inc.
**Manufacturer's Address:** 17911 LeBeau, C.P. 929, Quebec, QUE, J0N 1L0, Canada. Phone: 514-430-8690.
**Date of Introduction:** 1982. September.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1982. Sept. 17. Address is now 17911 LeBeau, C.P. 929, Quebec, QUE, J0N 1L0, Canada. Phone: 514-430-8690. Note that in July 1982 Norbert Argiles was an owner of SoyBios, C.P. 929, St. Janvier, QUE, J0N 1L0, Canada.

Soyfoods Center Computerized Mailing List. 1983. Jan. 17. Owner: Norbert Argiles. The address is now C.P. Box 278, Prevost, QUE, J0R 1T0, Canada. Phone: 514-224-2628.

Fran Halter. 1984. The Gazette (Quebec). March 5. "A Committed True Believer Spreads the Word About the Curd." About Norbert Argiles of Unisoya. Talk with Yvon Tremblay and Richard Milon. 1987. Dec. 11. Unisoya was started in 1976 by Norbert Argiles. It was one of the first tofu shops in Quebec. Their tofu was sold in Montreal. Argiles worked for 10 years then burned out. He sold the company, which still exists.

1425. Tallent, W.H. 1982. UJNR Toxic Microorganisms Panel. *Northern Regional Research Center, Notes from the Director* No. 1524. p. 3. Oct. 29.
• ***Summary:*** The meeting was held at the Food Research Inst., Univ. of Wisconsin, from Oct. 17-22. United States was represented by Dr. C.W. Hesseltine, NRRC. "In scientific sessions, 2½ days were devoted to mycotoxin and bacterial toxins. After a tour of the Biotron on the University of Wisconsin Campus, the panelists visited the Kikkoman plant at Walworth, Wisconsin. This plant in 10 years has doubled in size; it now uses 30,000 acres of soybeans and at least as many acres of wheat in soy sauce (shoyu) production. The operation is controlled by 6 team leaders, who develop consensus decisions with others in their groups. The terms 'foreman' and 'supervisor' are never used. Turnover of employees is only a tenth that of American companies, and absentee figures are only a fifth of that found in industries in the surrounding area. Last year production of shoyu amounted to 5 million gallons in this plant. Shoyu is sold in various quantities, up to 50-gallon drums; these larger quantities are sold to other [food] companies for flavoring purposes.

Note: Lite shoyu is being discussed. This plant supplies the U.S., Canada, and parts of Europe. The fermentation tanks are 17,000 gallons capacity. Address: Center Director.

1426. Hazarika, Sanjoy. 1982. Oilseeds cooperatives in India. *Agribusiness Worldwide.* Oct. p. 10-14. [Eng; spa]
• ***Summary:*** "Sales of U.S. commodities have served to finance the establishment of cooperatives of small oilseed producers in India. Patterned after the country's successful milk co-ops, the oilseed co-ops have grown from 300 to over 70,500 members in only three years." The man behind this new movement is Dr. Verghese Kurien, the 61-year-old small dynamo of a man who launched the milk cooperative movement in the western India state of Gujarat in 1948, starting in the township of Anand.

"Financing for the scheme has been generated primarily by the sale of soybean oil and rapeseed oil donated by the Cooperative League of the USA (CLUSA) and the Canadian Cooperative Union. Money from the annual sale of about 86,000 tons of the edible oil is estimated at US$160 million. The U.S. group gets the oil from U.S. government surplus stocks and is to supply 160,000 tons of refined soybean oil over a seven-year period which ends in 1986."

Note: A similar article titled "Cooperatives in India" was published in the Cooperative League Fund Hunger Report in 1982. Address: Correspondent for the New York Times.

1427. Ouellette-Babin, Diane. 1982. Energy input and output of grain corn and soybean production. *Ontario Ministry of Agriculture and Food, Factsheet* No. 82-084. 3 p. Nov. AGDEX 100/708. [7 ref]
Address: Agricultural Energy Specialist, Ontario.

1428. Leviton, Richard. 1982. Re: Summary of soyfoods research trips in the Midwest and Canada (Oct. 14-28) and West Coast (Nov. 21-30). Letter to William Shurtleff at Soyfoods Center, Dec. 6. 2 p. Typed, with signature on letterhead.
• ***Summary:*** The letter begins: "As you requested, the notes on my 'historic' tour, hysterically unprofitable, but at least fun." Traveling 4,700 miles, Leviton gave programs about tofu, tempeh, and other soyfoods sponsored by various companies, and was on TV and newspaper interviews. Companies visited in the Midwest and Canada: Rising Sun (Columbus, Ohio), Prairie Soyl, Community Foods Tofu/

Tempeh Shop, Light Foods, Michiana Soyfoods, Zakhi Soyfoods, Bountiful Bean, Higher Ground Tempeh, Steve Fiering (disappointing business meeting), Soyateria, Victor Foods (Toronto, Ontario, Canada), La Soyarie (Ottawa), Unisoya (Quebec).

West Coast and British Columbia: Wildwood Natural Foods, Brightsong Light Foods, Dayspring Soyacraft, Sooke Soyfoods, Metta Tofu, Sin-Mei-Do, Thistledown, Lifestream, Surata.

Leviton is thinking about relocating in California or working with Soyfoods Center on writing books. Address: 100 Heath Rd., Colrain, Massachusetts 01340. Phone: 413-624-5591.

1429. **Product Name:** Lecithin–C.V.O.P.
**Manufacturer's Name:** Canadian Vegetable Oil Processing. Div. Canada Packers Inc.
**Manufacturer's Address:** Victoria Ave & Burlington St., Hamilton, ONT, Canada.
**Date of Introduction:** 1982.
**New Product–Documentation:** Soya Bluebook. 1982. p. 58.

1430. **Product Name:** Soycow (Soymilk).
**Manufacturer's Name:** Dayspring Soyacraft Corporation.
**Manufacturer's Address:** 626 Esquimalt Rd., No. 5., P.O. Box 7285, Station D., Victoria, BC, V9A 3L4, Canada. Phone: 604-382-2144.
**Date of Introduction:** 1982.
**New Product–Documentation:** Form filled out by Michael and Paul Hsieh. ca. 1982. Soya Bluebook. 1986. p. 102.

1431. EUVEPRO. 1982. Vegetable protein: A case for consumer choice. Brussels, Belgium. 12 p. [Eng]
• ***Summary:*** Contents: Introduction. What are vegetable protein products? Vegetable protein products–their range of applications. Nutritional aspects. Vegetable protein products and the European Community. Vegetable protein products and the farmer. Legal aspects. EUVEPRO; The European Vegetable Protein Federation: What is EUVEPRO? (founded in 1977), the aims of EUVEPRO, how EUVEPRO works.

European food legislation and regulations create many obstacles which restrict or prevent the use of vegetable proteins in practice. "These restrictions are out of date and should be lifted to enable consumers to enjoy the benefits of this valuable food ingredient."

"The Codex Alimentarius Commission acknowledged the value and the specific problems of vegetable protein products by creating a Codex Committee on Vegetable Proteins hosted by Canada (two sessions held in Ottawa, 1980 and 1982) and the E.E.C. Commission created a Working Group on Vegetable Proteins which published its conclusions in 1978... Food law in all countries rests on the application of two guiding principles: protection of the consumer's health and protection against deception... The EEC Labeling Directive of December 1978 responded to a need for clear labeling provisions."

This report uses the term "soya" as a singular noun throughout, e.g. "Soya represents, after wheat, the world's major vegetable protein source." Address: Brussels, Belgium.

1432. **Product Name:** [Tofu (Firm, Regular, or Kinugoshi)].
**Foreign Name:** Tofu (Ferme, Regulier, Veloute).
**Manufacturer's Name:** Les Aliments Multisoya Inc.
**Manufacturer's Address:** 1925 Route 139, Roxton-Sud, QUE, J0H 1Z0, Canada.
**Date of Introduction:** 1982.
**Ingredients:** Feves soya, eau, nigari naturel (clorure de magnesium).
**Wt/Vol., Packaging, Price:** 250 gm or 500 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 1982, undated. 4.5 by 4 inches. Plastic film. Reddish purple, yellow and black on clear film. Drawing of bean vine. "Keep refrigerated. No cholesterol. Product of Quebec." Claude Harris is the owner. Letter (handwritten) from Frances of Les Aliments Multisoya Inc. 1984. March 1. He has already sent a resumé of his conference of Nov. 1983. Gives the owner's name, address and phone number of the company.

1433. Maison Tofu. 1982. New soyfoods restaurant or deli. 835 est, rue Duluth, Montréal, QUE, H2L 1B2, Canada.
• ***Summary:*** Menu sent by Richard Leviton. 1982. Above "Maison Tofu" is written in French: "buffet/café pour végétarien gourmet." The menu includes the following soy-related dishes: A la carte: Tofu burger. Sandwich au tofu. Chili con tofu. Choix quotidien, avec margarine de soya ou beurre. Les plats choisis: Lasagna de tofu. Tofu bourguignon. Ragoût de tofu. Chili con tofu. Grande salade verte–du tofu mariné. Desserts: Pouding de tofu aux fruits. Address: Montreal, Quebec, Canada. Phone: 522-2304.

1434. **Product Name:** Lecithin.
**Manufacturer's Name:** Maple Leaf Monarch Co.
**Manufacturer's Address:** 365 Evans Ave., Toronto, ONT, M8Z 5W7, Canada.
**Date of Introduction:** 1982.
**New Product–Documentation:** Soya Bluebook. 1982. p. 58.

1435. Shin-Mei-Do Miso Company. 1982. What is miso (Leaflet). Denman Island, British Columbia, Canada. 2 p. Front and back. 28 cm.

• ***Summary:*** Side 1 is an introduction to miso. Side 2 is recipes, plus a plug for *The Book of Miso,* by Shurtleff & Aoyagi. Address: Denman Island, BC, Canada, V0R 1T0. Phone: 335-0253.

1436. **Product Name:** Soyettes (Meatless Soy-based Patties / Burgers).
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2849 Dundas St. W., Toronto, ONT, M6P 1Y6, Canada.
**Date of Introduction:** 1982.
**Ingredients:** Soy mash [okara], oats, rice, cashews, soy oil, sunflower seeds, sesame seeds, tamari, potato starch, herbs, seasoning, spices.
**Wt/Vol., Packaging, Price:** 350 gm paperboard box containing 4 patties.
**How Stored:** Frozen.
**New Product–Documentation:** Interview with Jon Cloud. 1985. Aug. Label sent by Jon Cloud. 1989. May 5. Product was introduced in 1982.

1437. Soyateria (The). 1982. Soyfoods specialty shop: Menu. 2847 Dundas St. West, Toronto, ONT, M6P 1Y6, Canada. 1 p.
• ***Summary:*** The menu includes the following soy-related dishes: Hot sandwiches: Tofu not dog. Tofu okara superwich. Soyball submarines. Tofuna submarine. Soysalad submarine. Soy reuben. Tofu delight. Specials: Agé. Side orders: Tofu macaroni salad. Tofu dip–for chips or vegetables. Salad-sandwich spreads: Tofuna. Soya. Tofu macaroni. Beverages: Cashew nut milk. Soymilk shakes (Banilla, Carobana). Desserts: Cheese cake. Puddings. Address: Toronto, ONT, Canada. Phone: 416-762-1257.

1438. **Product Name:** Bean Cake, Tofu Curds, Pressed Tofu, Grilled Tofu.
**Manufacturer's Name:** Superior (Tofu) Soy Products Co. Renamed Superior Tofu Ltd. in 1994.
**Manufacturer's Address:** 1752 Commercial Dr., Vancouver, BC, V5N 4A3, Canada. Phone: 604-253-1050.
**Date of Introduction:** 1982.
**New Product–Documentation:** Business card from Percy Chan. Received 1987. Sept. Chinese characters read: Doufu, Doufu-hwa, Dou-jiang, Doufu-gan, Zha-doufu.

Talk with Rita Chan, owner. 1997. June 23. She and her husband started this company in 1982 at 1752 Commercial Dr., Vancouver. Originally they made 4 types of tofu plus soymilk. They stayed at this location until 1992. However in 1986 they expanded into a new location at 438 Main Street in Vancouver. In 1994 they moved out of the building on commercial drive and into their present, much larger building at 1469 Venables St., Vancouver, BC Canada V5L 2G1. Phone and fax: (604) 251-1806. Also in 1994 they changed the company name to Superior Tofu Ltd., the present name. Then in 1996 they moved out of Main St., consolidating all operations at 1469 Venables St. Over the years they have added many new soy products. In Feb. 1997 they started a restaurant named Superior Tofu in the heart of Chinatown in Vancouver. They serve mostly fast foods–using much of their own tofu and soymilk–and they also have a retail outlet.

1439. **Product Name:** Soya Milk.
**Manufacturer's Name:** Superior (Tofu) Soy Products Co.
**Manufacturer's Address:** 1752 Commercial Dr., Vancouver, BC, V5N 4A3, Canada. Phone: 604-253-1050.
**Date of Introduction:** 1982.
**New Product–Documentation:** Business card from Percy Chan. Received 1987. Sept. Chinese characters read: Dou-chiang.

Talk with Rita Chan, owner. 1997. June 23. She and her husband started this company in 1982 at 1752 Commercial Dr., Vancouver. They made soymilk from day one.

1440. **Product Name:** Soy Pate (from Okara).
**Manufacturer's Name:** Thistledown Soyfoods.
**Manufacturer's Address:** R.R. 5, Duncan, BC, V0L 4T6, Canada.
**Date of Introduction:** 1982.
**New Product–Documentation:** Leviton. 1982. In a Small Bright Building. They began making tofu in Oct. 1981.

1441. Carroll, K.K.; Woodward, C.J.H. 1982. Hypocholesterolaemic effects of soy protein in relation to amino-acid composition: Experimental researches. In: G.C. Descovich and S. Lenzi, eds. 1982. Soy Protein in the Prevention of Atherosclerosis. Lancaster [Lancashire], Boston, The Hague: MTP Press. 110 p. See p. 21-26. Chap. 3. [21 ref]
Address: 1-2. Univ. of W. Ontario, London, Canada.

1442. Jenkins, Suzy; Praskin, L.; Praskin, A. 1982. Plenty integrated soy program, Guatemala. Summertown, Tennessee: The Book Publishing Co. 48 p. Illust. 28 cm.
• ***Summary:*** This remarkable, inspirational, creative booklet contains the best summary of Plenty's Solola Soy Program, with 71 excellent black-and-white photos, many of them taken by Jenny Banks Bryant and others. "Plenty Canada" (founded in 1976 by a group of Canadians) provided the funding for this project and Plenty International provided the volunteers. It was a very successful and innovative project, that unfortunately was suspended in 1980 when the political situation became too dangerous for Americans to stay in the area. Happily, it was restarted by Plenty Canada in mid-1985 and as of early 1988 is active and growing.

Contents: Plenty. Preface. Soy agricultural program. Soy demonstration program. Soy extension program. Step-by-step demonstration process (how to make soymilk and

tofu in a Guatemalan village). Plenty Solola soy dairy. Soy dairy floor plan and flow sheet. Step-by-step production procedures. Marketing soy products. Poor people and nutrition. Training apprentices. Appendix.

The Preface, by Plenty director David Purviance, notes that Plenty went to Guatemala in 1976 to help with reconstruction following a severe earthquake. Plenty set up a primary health care program and an orphanage. "In these programs, we fed soymilk to the children who were brought to us for care. The beneficial effects on these malnourished kids were unmistakable. Many of the Indian mothers observed that our own children remained healthy on a soy-based diet. Living in the village and learning the language and lifestyle of the people, Plenty volunteers remained accessible to our Indian neighbors.

"In 1978, agronomist Daryl Jordan began testing the feasibility of growing soybeans in the highland area. The results were good, and Suzy Jenkins started demonstrating how to make soymilk and tofu in some of the local homes. As interest and support for the soybeans grew, they were joined by Laurie and Alan Praskin to help expand the project. During the next two years, their efforts produced a three-phase program of soy introduction that improved the lives of several thousand Guatemalan Indians. What follows is their account of a program that included the cultivation of soybeans by village farmers, home demonstration of soy preparation techniques and the creation of a village-scale soy dairy which produces soy ice cream and tofu for sale in the local market and for free distribution to hungry kids."

Page 15 states: "The Extension Program was implemented by one soy technician and the 18 trained cooperative extensionists. In six months over 1,000 men and women were taught how to make soymilk and tofu through this program. One hundred ten classes were held in 74 different areas." Photos show tofu and soymilk being made. Thirteen photos (p. 12-17) show the step-by-step process for making tofu in a Guatemalan village, including:

(1) San Martin soy extensionists preparing tofu at a nutrition class.

Twenty-four photos (p. 18-32) show the Solola Soy Dairy, including its construction, inside, outside, floor plan, and the step-by-step process for making tofu and soy ice cream. Page 21 states: "The soy dairy started operation in February of 1980. It produces approximately 90 to 100 gallons of soy ice cream and 60 to 75 pounds of tofu a week. Its maximum production capacity with the present equipment is 200 gallons of ice cream and 450 pounds of tofu a week. It was stocked with a year and a half supply of soybeans and has since been supporting itself by selling soy ice cream and tofu from the dairy in the local marketplace."

(2) "The soy dairy is open for selling tofu and soy ice cream seven days a week. Suzy Jenkins hands soft-serve soy ice cream in cones from a soy dairy window (p. 32).

(3) Little Mayan girl eating seasoned tofu from a bowl. "A one-half pound serving of tofu sells for 25 cents [U.S.]

Note: This is the earliest document seen (Jan. 2003) that mentions “Plenty Canada” (see p. 4). Address: The Farm, Summertown, Tennessee.

and contains: 163 calories (10% of the Recommended Dietary Allowance for a child age 4-6 years), and 17.7 grams of protein (59% of RDA) (p. 37).

(4) Little Mayan girl licking a big soy ice cream cone as she runs. “Our soy ice cream contains soymilk, tofu, sugar and oil, which make it abundant in calories and protein. A half-cup serving of our soy ice cream sells for 10 cents and contains 183.4 calories” (11% of the Recommended Dietary Allowance for a child age 4-6 years) and 3.1 grams of protein (10% of RDA) (p. 38).

In the chapter titled “Marketing soy products,” a photo (p. 33) shows the Soy dairy booth in the Solola market. The sign over the window reads: “Helados y Queso–Hecho de frijoles de soya” [“Ice cream and cheese–Made from soybeans”]. Photos on the next two pages show: Mayan women preparing tofu to be sold on tortillas at the Solola State Annual Fair. The booth at the fair with a sign advertising soy ice cream and tofu. Guatemalan soldiers enjoying soy ice cream cones. Many happy kids holding up soy ice cream cones. A Plenty volunteer “giving away soy ice cream to 180 children at a school in a rural village.”

1443. Kamel, B.S.; deMan, J.M. 1982. Composition and properties of bean curd made from Ontario soybeans. *Canadian Institute of Food Science and Technology Journal* 15(4):273-76. [7 ref. Eng; fre]

• ***Summary:*** The composition and properties of tofu made from 11 varieties of soybeans grown commercially in Ontario were determined. The crude protein content of the soybeans (in gm/100 gm, on an “as is” basis) ranged from 31.6 to 38.9. The minimum concentrations for coagulation were 0.1% for calcium chloride, 0.25% for calcium sulfate, and 0.20% for calcium acetate. Calcium citrate did not coagulate soymilk. Both anion and pH appear to influence coagulation. The initial pH of the soymilk was 6.58 and coagulation occurred at pH 5.91 for calcium chloride, 5.74 for calcium sulfate, and 6.09 for calcium acetate. Curd yield ranged from 20.7 to 27.3% and protein yield from 59.0 to 69.8%.

Queso Blanco (recently being studied in the author’s department) is a cheeselike product made in Latin America from dairy milk that is heated and coagulated using acidic fruit juices or acidic solutions (citric acid or calcium

chloride). It is salted, separated, and pressed. The white creamy fresh cheese, which is ready to be used after a short period of ripening, has a high yield and interesting functional properties. "The similarity between this process and the manufacture of Tofu is obvious. It should be interesting to study production of a mixed soymilk Queso Blanco." Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT N1G 2W1, Canada.

1444. Ko Swan Djien. 1982. Indigenous fermented foods. *Economic Microbiology* 7:15-38. A.H. Rose, ed. Fermented Foods. [67 ref]

• ***Summary:*** Contents: 1. Introduction. 2. Foods fermented by moulds: Roles of the moulds. 3. Foods fermented by bacteria: Fermented vegetable products, fermented fish products, fermented seeds (natto, thua-nao, dagé), fermented starch-rich raw materials (fermented maize products, fermented rice products, fermented cassava), fermented plant juice.

4. Foods fermented by a mixture of moulds and yeasts: Ragi, micro-organisms, fermented starch-rich raw materials.

5. Foods firstly fermented by moulds [as in making koji], followed by a fermentation with a mixture of bacteria and yeasts (the salt-tolerant yeasts are species of *Saccharomyces* and *Torulopsis;* the bacteria are species of *Pediococcus* and *Streptococcus):* Tane koji, soy sauce, other fermented soybean products (tauco {porridge or dry consistency}, miso, hamanatto {which is soft and his a high moisture content}, tou-shih {which has a much lower water content than hamanatto and is therefore not so soft}. These "fermented soybean products are also used as flavouring agents in cooking as well as table condiments or as a side dish").

6. Specific aspects of fermented foods: Mould species, lactic-acid bacteria, yeasts, salt. 7. Acknowledgement. References.

Concerning soy sauce (p. 30-31): "Japanese *shoyu* is made from equal amounts of soybeans and wheat." The "raw materials are inoculated with tane koji which contains spores of selected strains of *Aspergillus oryzae* and *A. soyae.* In less sophisticated soysauce factories throughout South East Asia, mould species grow spontaneously on the soybeans by natural contamination from the air and from the bamboo trays on which soybeans of former batches were incubated (Bhumiratana et al., 1980). The moulds involved are species of *Aspergillus, Rhizopus,* or *Mucor.* Some Indonesian *kecap* manufacturers inoculated the cooked soybeans with tempe [tempeh] inoculum which contains spores of *Rhizopus oligosporus."*

Tables: (1) Conferences discussing aspects of indigenous fermented foods (1977-1981, chronological). (a) Symposium / Workshop on Indigenous Fermented Foods, Nov. 21-26, 1977, Bangkok, Thailand. (b) World Conference on Vegetable Food Proteins, Oct. 29–Nov. 3, 1978, Amsterdam, The Netherlands, (c) Symposium on Fermented Foods, Nov. 22, 1978, London, England. (d) International Symposium on Oriental Fermented Foods, Dec. 10-14, 1979, Taipei, Taiwan. (e) United Nations University Workshop on Research and Development Needs in the Field of Fermented Foods, Dec. 14-15, 1979, Bogor, Indonesia. (f) VIth International Fermentation Symposium, July 20-25, 1980, London, Ontario, Canada. (g) Eighth Conference of Association for Science Cooperation in Asia (ASCA), Feb. 9-15, 1981, Medan, Indonesia.

(2) Origins of various fish sauces. (3) Origins of various fish pastes. (4) Names given in various countries to an inoculum used to manufacture food products. (5) Names given in various countries to fermented glutinous rice *(Oryza sativa glutinosa).* (6) Names given in various countries to rice wine. (7) Names given to soy sauce in different countries *(Chiang-yu* in China, *Kan jang* in Korea, *Kecap* in Indonesia, *Shoyu* in Japan). (8) Soybean foods produced by a two-stage fermentation *(Hamanatto and miso* in Japan, Soy sauce in the Orient, *Taoco* in Indonesia, *Tao-si* in the Philippines, and *Tou-shih* in China). Address: Dep. of Food Science, Agricultural Univ., Wageningen, Netherlands.

1445. Plenty International. 1982. Soy Demonstration Program: Introducing soyfoods to the Third World. A step by step guide for demonstrating soymilk and tofu preparation. Summertown, Tennessee. 16 p. Undated. Illust. 21 cm.

• ***Summary:*** Actually written by Suzy Jenkins and Laurie Praskin, this booklet is a summary of two larger works published in 1980 (written by Darryl Jordan and Suzie Jenkins) and earlier in 1982 (by Suzy, Laurie and Alan Praskin).

As interesting as it is innovative, this summary focuses on Plenty International's Soy Demonstration Project in Guatemala, showing how soybeans are being grown in local villages and women are making soymilk and tofu using traditional equipment. All Guatemalans are shown in traditional Mayan clothing *(traje).*

Contents: Introduction. Soy extension program. A soy demonstration in photographs: Soaking the beans, grinding, cooking, straining, soymilk, curding tofu, straining the curds, storing the products. Helpful hints. Recipes. A nutritional comparison. Soybean agricultural impact statement.

Black and white photos show soyfoods and people in Guatemala. These include: (1) A little Guatemalan girl, kneeling, licking her fingers as she eats seasoned tofu from a bowl. (2) Women smiling and laughing as they grind soybeans on traditional stone *metate.* (3) Women's nutrition group (with children) from San Jose Poaquil standing behind their soybean patch. (4) Simple tools needed for making tofu. (5) Close-up of a woman grinding soybeans on

a *metate*. (6-8) Cooking ground soy slurry and filtering the soymilk from the pulp. (9) A little girl drinking a big cup of soymilk. (10-14) Curding the tofu, straining the curds, and pressing the tofu. (15) Girl eating tofu on a bun. (16) A happy group of Guatemalans and Americans standing around a stove, enjoying soymilk and tofu. (17) Soybean variety trials in Solola, Guatemala. Elevation: 7,200 feet (2,195 meters). (18) A little bustling along as she licks a cone of soymilk ice cream.

On the rear cover: "The Soy Demonstration Project was funded by Plenty International, UNICEF (United National International Children's Educational Fund) and CIDA (Canadian International Development Agency), and donations from supporters." For further information write: "Suzy Jenkins or Laurie Praskin, Plenty Soy Technicians, 156 Drakes Lane, Summertown, Tennessee 38483 USA." Address: Summertown, Tennessee.

1446. Poirier, Marie. 1982. Le plaisir de la cuisine au tofu [The pleasure of tofu cuisine]. Prevost, Quebec, Canada: Unisoya Inc. 52 p. No index. 22 cm. [2 ref. Fre]
• ***Summary:*** Includes recipes for main courses, soups, salad dressings, salads, and desserts. Many of the recipes call specifically for Unisoya tofu. There is also an ad for Unisoya on the rear cover. Address: Quebec, Canada.

1447. Victory Soya Mills Limited. 1982. Soybeans in Canada. Toronto, ONT, Canada. 25 p. 28 cm.
• ***Summary:*** Contents: 1. Introduction: History, world production, characteristics and products. 2. Plant growth and development: The seed, vegetative growth and development, reproductive growth. 3. Growing the crop: Varietal selection, soils, seedbed preparation, planting date, planting rate, planting depth, row width, seed inoculation, seed treatments, soil fertility, weed control, mechanical weed control measures, chemical weed control measures, crop diseases, insects, harvesting, drying, storage. 4. Marketing and utilization. 5. Appendices: Soybean varieties and distributor addresses, herbicides, insecticides, publications.

On the cover of this attractive color booklet is a photo of a white sack filled with white-hilum soybeans on a wooden floor; a Canadian flag projects from the top of the bag. There are two photos of Victory Soya Mills on the Toronto waterfront. "Most of Canada's [soybean] production is still centered in the five southwest counties of Ontario (Essex, Kent, Lambton, Middlesex and Elgin). New early varieties, however, are rapidly spreading the crop throughout Ontario and even into the prairie provinces." Address: 333 Lakeshore Blvd. E., Toronto, ON M5A 1C2. Phone: (416) 363-8771.

1448. **Product Name:** Soya Nova Tofu.
**Manufacturer's Name:** Soya Nova Tofu Shop.
**Manufacturer's Address:** Glen Echo Rd., R.R. #1, Mayne, BC, V0N 2U0. Canada.
**Date of Introduction:** 1983. January.
**New Product–Documentation:** Talk with Debbie Lauzon. 1990. Dec. 28. Then letter from her on 11 Feb. 1991. She learned how to make tofu 15-20 years ago in California, where she also bought tofu. Then she moved to Canada and was living on a farm in the Ottawa Valley, Ontario, Canada. A friend bought and sent her a little tofu kit that enabled her to make about 1 pound of tofu. She and Chris Kodaly first started making tofu commercially in Jan. 1983 at Mayne, BC, Canada. Mayne Island is a small island in the Gulf Islands, with a population of about 500. The official name of the company was and still is Soya Nova Tofu Shop. The market was small so she only made 10 lb of tofu a week. But nearby Galiano Island is a larger market, so on Fridays she took went there and sold her tofu at the farmers' market. The only way back to Mayne Island was via Saltspring Island (the largest of the Gulf Islands), so she sold her tofu there at the Saturday farmers' market. Saltspring (population 5,000) soon became her biggest market so she and Chris moved there from Mayne in 1985. Their tofu shop is part of their home and is considered a cottage industry.

As of Feb. 1991 Soya Nova makes about 800 lb/week of tofu on Saltspring (up from 400 lb/week in Dec. 1990); they have about 3 employees, not all full time. Chris Kodaly has not been directly involved with the company for the last couple of years. He is a piano teacher, but he is still her business partner. "The most important thing for Soya Nova is to produce the freshest and best tofu for our community, friends, and family."

Leaflet sent by Deborah. 1991. Feb. 6. The company is now located at 1200 Beddis Road, Ganges, B.C. V0S 1E0. Phone: 537-9651. But the return address on the envelope is RR#2 Rourke Rd. C-28, Ganges. Products that are coming soon are Okara Granola Bars and Tofu Cheesecake.

1449. A&P. 1983. You'll do better with these great super... (Ad). *Toronto Daily Star (Canada).* Feb. 9. p. C8.
• ***Summary:*** In the right center of this full-page ad: "Fresh To Fu. Product of Ontario. Soya Bean Curd, 500 gm pkg.–99¢." Address: Toronto.

1450. Shurtleff, William; Aoyagi, Akiko. 1983. History of miso and soybean jiang. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 82 p. Feb. 21. Unpublished typescript.
• ***Summary:*** A comprehensive history of the subject. Contents: Introduction. Etymology. Part I: History of soybean jiang in China. Early Chinese non-soybean jiang. Early Chinese soybean jiang (100 B.C. to 599 A.D.). 600 to 1899. The Twentieth Century. Part II: History of soybean jiang/jang in Korea and Southeast Asia. Dissemination of jiang from China. Korea. Indonesia. Vietnam. Malaysia. Part III: History of miso in Japan. Introduction; origins not

clear. Early non-soybean hishios (before 700 A.D.). The Nara period (710-784 A.D.); Ganjin 754. The Heian period (794-1160 A.D.). The Kamakura period (1185-1333). The Muromachi period (1336-1568). The Edo or Tokugawa period (1603-1867). The Meiji and pre-war periods (1867-1940). The postwar period, modern times (1941-1982). Part IV: History of miso in Europe. Early European references (1597-1899). 1900-1949. 1950-1982. Part V: History of miso in the United States and Canada. Early developments (1896-1929). 1930-1959. Growth of interest in miso (1960-1982). Part VI: History of miso in other countries. India. Israel. Latin America. Address: Lafayette, California. Phone: 415-283-2991.

1451. **Product Name:** Soyettes (Okara Patties). Renamed Veggie Burger in Feb. 1992.
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2847 Dundas St. West, Toronto, ONT, M6P 1Y6, Canada. Phone: 416-762-1257.
**Date of Introduction:** 1983. February.
**Ingredients:** Soybean pulp [okara], durum flour, cornmeal, water, vegetable oil, onion flakes, vegetable flakes, lecithin, sunflower seeds, herbs, spices, sea salt.
**Wt/Vol., Packaging, Price:** Four 64.2 gm patties in a bright red box with a color photograph.
**How Stored:** Frozen.
**New Product–Documentation:** Spot in Soyfoods. 1983. Winter. p. 48. "Give Okara a Pat." Talk with Lorraine Guardino of Soy City Foods. 1992. Feb. 18. The Soyettes are now called the Veggie Burger. The ingredients are different; it has no cholesterol and is low in fat. The packages will be ready in about 3 weeks, and should be available at retail stores within 1 month. The product is now sold only to the food service industry; it first became available in early Feb. 1992.

1452. *Soyfoods.*1983. Cottage soy industries thrive on Vancouver Island. Winter. p. 36-37.
• ***Summary:*** Wayne Jolley's Sooke Soyfoods, which opened in early 1981, produces 1,800 lb/week of nigari tofu. Thistledown Soyfoods, run by Jan Norris, opened in October 1981. Each week the company produces 350 lb of tofu, 150 lb of tempeh (vacuum packed), and 75 lb of soy pate from okara. At Shin Mei Do Miso, Lulu and Yoshi Yoshihara have been making miso since 1979. They now produce 10,000 lb of 3 styles of miso each year. Metta Tofu is owned by "Ray Lipovsky, who might be North America's original cottage tofumaker as he's been coagulating soymilk with sea water since 1975... Besides producing 600 pounds of nigari tofu every week, Lipovsky is hot on the trail of Frozen Buddha, his multi-flavored line of frozen soymilk ice cream, already producing 360 gallons weekly."

Also on the island in Victoria, though too large for the cottage scale, is Dayspring Soycraft Corporation, operated by Michael Hsieh. Hsieh, a trained dentist, and his brother, Steven, and their families, emigrated to British Columbia from Taiwan and decided to launch a pressure cooker tofu plant in 1982.

1453. Tsukamoto, J.Y. 1983. Agro-Man Soybean Program in 1982. Paper presented at the 38th Annual Meeting of the Expert Committee on Grain Breeding (ECGB). 11 p. Held 15-16 Feb. 1983.
• ***Summary:*** This has been the fourth year of soybean production demonstrations since this program was implemented; 24 cooperators were involved. The main varieties tested were McCall, Maple Presto, and Maple Amber. A killing frost on Aug. 27 damaged many soybean plants. The protein content of the soybeans harvested was lower than desired (40.3% vs. 44% desired). In 1983 it is planned that the Maple Amber variety will be tested on about 607 ha (1,500 acres) by about 30 cooperators. Address: Manitoba Agriculture.

1454. Voutsinas, Leandros P.; Cheung, E.; Nakai, S. 1983. Relationships of hydrophobicity to emulsifying properties of heat denatured proteins. *J. of Food Science* 48(1):26-32. Jan/Feb. [32 ref]
• ***Summary:*** Soy protein isolate was obtained from General Mills, Inc. (Minneapolis, Minnesota). Promine-D was obtained from Central Soya Co. (Chicago, Illinois). The emulsifying properties of a protein could be well predicted based solely on the surface hydrophobicity level, but not on the basis of solubility level. Soy protein is now much less used for its functional properties as a food material except as an additive for meat and seafood products. Address: Affiliated with the Dep. of Food Science, the Univ. of British Columbia, Vancouver, Canada V6T 2A2.

1455. Shurtleff, William; Aoyagi, Akiko. 1983. History of soy oil hydrogenation and of research on the safety of hydrogenated vegetable oils. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 49 p. April 14. Unpublished typescript.
• ***Summary:*** A comprehensive history of the subject. Contents: Introduction. Part I: What is hydrogenation? About hydrogenation. About *cis* and *trans* fatty acid isomers. Part II: A brief history of hydrogenation. The early years (1897-1939). Hydrogenation developments from 1940-1982. Part III: History of research on the safety and nutritional value of hydrogenated oils and fats. Address: Lafayette, California. Phone: 415-283-2991.

1456. Fox, Chloe; Fox, Abraham. 1983. The au naturel tofu manual: Modern Jewish tofu cooking. Au Naturel, 6110 Monkland Ave., Montreal QUE, Canada H4A 1H4. 47 p. April. No index. 21 cm. [7 ref]

• ***Summary:*** Contents. Introduction. 1. Basic ingredients. Recipes–2. Entrées. 3. Main dishes. 4. Desserts. Address: Au Naturel, Montreal, QUE, Canada.

1457. Richard, Lou. 1983. History of Fearn Soya Foods (Interview). Conducted by William Shurtleff of Soyfoods Center, May 6. 1 p. transcript.
• ***Summary:*** Elwood has Dr. Fearn's files. Lou called Elwood and Elwood said he will send (loan) Soyfoods Center everything he has. Lou will send (loan) Soyfoods Center some coins and invoices from about 1935. In about 1947-49 Dr. Fearn's secretary, Renee, went home with lots of the company records.

Fearn Natural Foods was at 1206 N. 31st Ave., Melrose Park. In 1955 they moved to 355 West Ontario. Then in 1968 they moved to their present address at 4520 James Place in Melrose Park, Illinois. In 1982 the company name was changed from Fearn Soya Foods to Fearn Natural Foods.

Lou is quite sure Dr. Fearn died in 1947–not 1949. since that was the first year he (Lou) started to work in the company; he graduated from 8th grade in 1947. In 1949 he was a sophomore in high school.

A box arrived from Fearn via UPS in early May 1983, several days after this interview. It contained a wealth of early documents in 21 different files. The names of the files were: 1. Stubs of cancelled checks, 1946-47. 2. Walker = Purchase order to Fearn from H.W. Walker Co. in Chicago. 3. Harriett Assoc. (anti-Communism). 4. Large ledger of orders received in 1937. 5. Small ledger of orders received in 1936-37. 6. Dr. Fearn's circulars and labels, old. 7. Miscellaneous bills, 1947. 8. Vitona. 9. P.A. [Paul] Richard. 10. Personal, Dr. Fearn (incl. lots of photos, but no good ones of him). 11. Products, processes, machinery (Dr. Fearn). 12. Professional correspondence, as with Le Clerc. 13. Miscellaneous deals and ventures (Dr. Fearn). 14. Manufacturers (incl. Loma Linda). 15. Golden Mix. 16. Financial, incl. cancelled signed checks. 17. Fearn Foods = Fearn International. 18. Correspondence–Malcolm McBride and Viana deal. 19. Miscellaneous old trucking bills & unusual items. 20. English connections. 21. Correspondence, Belleville in Southern California.

Included in the shipment were many coins that Dr. Fearn apparently collected during his travels, including coins from the following countries–listed alphabetically. The number of coins from each country, and the range of dates that appear on the coins are shown in parentheses. Note that Dr. Fearn was probably in a particular country on or after the latest date: Austria (3, 1924-1925), Belgium (4, 1870-1917), Canada (3, 1842-1918), China (40, all undated, but "10 cash" token coins with square hole in center, minted from 1853-1861), Germany (Deutsches Reich, 45 coins, 1874-1927), Great Britain (6, 1856-1922), Japan (7, 1889-1923), Luxembourg (2, 1906-1916), United States (1, 1916). Address: Melrose Park, Illinois 60160.

1458. Fox, Chloe; Fox, Abraham. 1983. The au naturel tofu manual: Tofu recipes for families. Au Naturel, 6110 Monkland Ave., Montreal, QUE, H4A 1H4, Canada. 42 p. May. No index. 22 cm. [5 ref]
• ***Summary:*** Contents. Introduction. 1. Basic ingredients. Recipes–2. Entrées. 3. Main dishes. 4. Desserts. 5. Miscellaneous. Address: Montreal, QUE, Canada.

1459. Leviton, Richard. 1983. In search of the elegant plate: Using tofu in restaurants. *Soyfoods.* Summer. p. 22-32.
• ***Summary:*** *Soyfoods* magazine recently interviewed 50 restaurants around the country to learn how they were serving tofu, the amount of tofu they used each week, and their prognosis for tofu's future in restaurants. The interviews focused on natural foods and macrobiotic style restaurants–where much of the current use and innovation is taking place. The 50 restaurants represent an estimated 8% of America's estimated 600 natural foods restaurants. The 50 restaurants interviewed purchase about 111 tons of tofu yearly; by extrapolation, all natural foods restaurants would purchase a total of 611.5 tons of tofu yearly, or 2.25% of current tofu production. Asian restaurants are estimated to use an additional 3,822 tons, or 14% of total production. Many restaurants prefer to buy their tofu in bulk directly from the manufacturer. Leading centers for tofu innovation in restaurants are Boston (from the macrobiotic community), New York, then San Francisco and Los Angeles (which have large numbers of Asian-Americans and tofu manufacturers). Open Sesame, one of Boston's foremost macrobiotic restaurants, uses 350 pounds/week of tofu according to owner Gary Welkin. Also discusses tofu use and dishes served at various natural food vegetarian restaurants: Lotos/Lotus Cafe (Rochester, New York; owner Greg Weaver), Woodlands (Vancouver, BC, Canada), Blair Island (Eugene, Oregon), Meyera (Santa Monica, California), Penthouse Garden (New York City; chef George Roeger), Greens (San Francisco, California; run by Zen Center, head chef Jim Phalon), Sojourner Coffee House (Santa Barbara, California), Amazing Grace (San Francisco), Blue Heron (Minneapolis, Minnesota), Sunshine Inn (St. Louis, Missouri), Pachamama (Boulder, Colorado), Brownies (New York City), Moosewood Restaurant (Ithaca, New York), Latacarta (Boston), Blind Faith (Evanston, Illinois), Whole Wheat 'N' Wild Berries (New York City), Earth Angel (New York City), Green River Cafe (Greenfield, Massachusetts), The Garland (Tucson, Arizona), Cafe Shalom (Boston). At macrobiotic restaurants: L'Odeon (Boston), George's (Philadelphia, Pennsylvania), Grain Country (Hollywood, California), Paul & Elizabeth's (Northampton, Massachusetts), Five Seasons (Jamaica Plain, near Boston; owner John Pell), The Caldron

(New York City; they have been open since 1970, and making their own tofu since 1975), Angelica's Kitchen (New York), Seventh Inn (Boston), Harvest Cafe (Washington, DC). At mixed cuisine natural foods restaurants: The Unicorn (North Miami Beach, Florida; Terry Dalton, owner, opened in late 1979, uses 335 lb/week of tofu), Nature's Oven (Miami), The Natural Cafe (Santa Fe, New Mexico), The Eatery Amulette (Monmouth Junction, near Princeton, New Jersey), The Haven (Santa Fe, New Mexico), The Copper Star (Tucson, Arizona). At tofu fast food takeout restaurants and delis: The Unicorn (Florida), Erewhon Healthycatessen (Los Angeles), The Patisserie (Boulder), Golden Temple (St. Louis). Natural foods Oriental restaurants: The Wok (Greenfield, Massachusetts), Real Good Karma (San Francisco; has served tofu since 1976), Souen (New York City), Golden Horde (Cambridge, Massachusetts), Plum Tree (New York City), Shangrila (San Francisco), Inaka (Los Angeles), Fuji-Ya (Minneapolis). Specialty atmosphere white tablecloth restaurants: Trader Vic's (San Francisco), Cambridge Crossing (Salt Lake City, Utah), The Good Earth (chain of 30 restaurants owned by General Mills). Address: 100 Heath Rd., Colrain, Massachusetts 01340. Phone: 413-624-5591.

1460. **Product Name:** Tofu.
**Manufacturer's Name:** Maple Leaf Soyfoods Co.
**Manufacturer's Address:** 49 Bushmills Square, Agincourt, ONT, M1V 1K5, Canada.
**Date of Introduction:** 1983. June.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1983. June 20. Owner: M. Wei. Phone: Not listed.

1461. **Product Name:** [Tofu].
**Foreign Name:** Tofu.
**Manufacturer's Name:** Nanda-Line Soy Products.
**Manufacturer's Address:** 4058 Rue St. Urbain, Montreal, QUE, H2W 1V3, Canada.
**Date of Introduction:** 1983. June.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1983. June 20. Owner: Nantha Kumar. Phone: Not listed.

1462. **Product Name:** Tofu.
**Manufacturer's Name:** Nutri Soy Foods.
**Manufacturer's Address:** 20 Big Red Lane, Agincourt, ONT, M1V 1N9, Canada. Phone: 416-291-6823.
**Date of Introduction:** 1983. June.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1983. June 20. Owner: Harry Kwok.

1463. **Product Name:** [Tofu].
**Foreign Name:** Tofu.
**Manufacturer's Name:** Tofuco Foods Inc.
**Manufacturer's Address:** 3637 Cremaize E. #1215, Montreal, QUE, H1Z 2J9, Canada. Phone: 514-376-5010.
**Date of Introduction:** 1983. June.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1983. June 20. Owner: Not listed.

1464. **Product Name:** Tofu.
**Manufacturer's Name:** Wah Chong Co.
**Manufacturer's Address:** 80 Ossington Ave., Toronto, ONT, M5T 2R4, Canada. Phone: 416-532-0841.
**Date of Introduction:** 1983. June.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1983. June 20. Owner: Anthony Kim.

1465. **Product Name:** Tofu.
**Manufacturer's Name:** Winnie Imrie Tofu.
**Manufacturer's Address:** Route 1, Comp. 9, Site 1, Edgewood, BC, V0G 1J0, Canada. Phone: 604-269-7275.
**Date of Introduction:** 1983. June.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1983. June 20. Owner: Winnie Imrie.

1466. **Product Name:** Tofu.
**Manufacturer's Name:** Yee's Grocery.
**Manufacturer's Address:** 209 Pacific Ave., Winnipeg, MAN, Canada. Phone: 204-942-7668.
**Date of Introduction:** 1983. June.
**New Product–Documentation:** Soyfoods Center Computerized Mailing List. 1983. June 20. Owner: Philip Yee.

1467. Dubetz, Steve; Major, D.J.; Rennie, R.J. 1983. Production practices for early maturing soybeans in southern Alberta. *Canadian J. of Plant Science* 63(3):641-47. July. [12 ref. Eng; fre]
• ***Summary:*** Delaying seeding of soybeans to late May or early June reduced yields in southern Alberta. Address: Research Station, Agriculture Canada, Lethbridge, Alberta T1J 4B1, Canada.

1468. **Product Name:** [Tofu {Vacuum Packed, Nigari}].
**Foreign Name:** Tofu.
**Manufacturer's Name:** Regal Naturel (Marketer). Made in Quebec by Unisoya.
**Manufacturer's Address:** Montreal, QUE, Canada.
**Date of Introduction:** 1983. July.
**Wt/Vol., Packaging, Price:** 1 lb vacuum packed.
**New Product–Documentation:** Talk with Richard Milon. 1987. Dec. 11. He bought the tofu in bulk from Unisoya and

vacuum packed it. He had 4 products. Making each one was labor intensive. He sold them to 100 retail stores. The company survived until late 1984.

1469. **Product Name:** [Baked Tofu Roti (Sausage Flavor, or Bacon Flavor)].
**Foreign Name:** Baked Tofu Roti (Saveur de Saucisse, or Saveur de Bacon).
**Manufacturer's Name:** Regal Naturel (Marketer). Made in Quebec by Unisoya.
**Manufacturer's Address:** Montreal, QUE, Canada.
**Date of Introduction:** 1983. July.
**Wt/Vol., Packaging, Price:** 8 oz vacuum packed.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Richard Milon. 1987. Dec. 11. He bought the tofu in bulk from Unisoya. Both products were sold vacuum packed.

1470. **Product Name:** [Tofu Salad].
**Foreign Name:** Salade de Tofu.
**Manufacturer's Name:** Regal Naturel (Marketer). Tofu made by Unisoya.
**Manufacturer's Address:** Montreal, QUE, Canada.
**Date of Introduction:** 1983. July.
**New Product–Documentation:** Talk with Richard Milon. 1987. Dec. 11. He bought the tofu in bulk from Unisoya.

1471. *Presse (La) (Montreal, QUE, Canada).*1983. Le tofu, de la viande sans os [Tofu, the meat without bones]. Aug. 10. p. D4. [Fre]
• ***Summary:*** Contains recipes for tofu gratin and tofu cheesecake.

1472. Pink, Dave. 1983. Soybean story has thousands of conclusions. *Windsor Star (Essex County, Ontario, Canada).* Sept. 27. p. C6.
• ***Summary:*** The 2,700 soybean farmers in Essex County had bad weather and hard times during the past year. Peter Epp, a Leamington-area farmer, is chairman of the Ontario Soya-Bean Growers' Marketing Board. A photo shows Dave Pink. Address: Star agriculture reporter.

1473. Brennan, Thomas J. 1983. Re: Soybean production in Austria. Letter to William Shurtleff at Soyfoods Center, Sept. 30. 2 p. Typed, with signature on letterhead.
• ***Summary:*** The closed door policies of the region make information gathering a difficult, if not impossible, task. Two soybean specialists in the region are: (1) Dr. Jerzy Szyrmer, Plant Breeding and Accilimatization Inst., Radzikow, Poland. He has been attempting to develop soybean varieties for home production and consumption; he has no commercial interestes at all. (2) Prof. Dr. Victor F. Lishchenko, or his assistant, Dr. Leonid Kolesnikov, Food and Agriculture Dep., Inst. of U.S. and Canada Studies, 2-3 Khelbny per., Moscow, USSR. Lishchenko has just published a book in Russian on soybeans in the USSR.

"Now to address some of your questions. What causes swings in production and imports of soybeans and products? That is difficult to answer. Initially I would say imports are directly related to hard currency availability. The scientists and livestock production people recognize the value of soybeans, but don't control the purse strings. That's the central bank or foreign trade organizations. Soybean purchase requests go in the basket with all other import needs.

"Production swings are often caused by weather or disease. More commonly, however, I would attribute changes to government attitudes. For example, in Yugoslavia producers are paid nearly $400 / MT to raise soybeans while they could buy C.I.F. at about $250 / MT. Soybean production has increased, but so has corn and wheat production. These products are now bartered for beans and meal. If hybrids could be developed, Hungarian production would soar, as corn production did in the 70's. They want to grow soybeans, however, at this time, it is still more profitable to grow corn and small grains. The value of the crop per hectare far exceeds soybeans' potential value. Certain state farms which have produced beans in the past want to increase production; however, the central government discourages this by setting low prices. Three or four years ago the attitude was different and soy production was encouraged. Talk to Bob Bergland about the Farmland / Eaton proposal for a soy crushing plant in Hungary.

"Statistics on soy protein utilization are hard to come by. Imports are usually handled by the Ministries of Food, where I have few contacts. Sales are also controlled by a small number of companies, e.g., Ralston, ADM, Staley, etc., which are not prone to reveal figures. USDA at one time listed TSP sales, but I haven't seen any statistics for 1982 or 1983." Address: Gatterburggasse 18/2/3, A-1190, Vienna, Austria. Phone: 37-41-18.

1474. *Marketing and Development in Ontario Agriculture.*1983. Soybeans [in Canada]. Sept. p. 4-6.
• ***Summary:*** "Soybeans were introduced to Canada from the USA in 1893 by researcher C.A. Zavitz at the Ontario Agricultural College. Working alone for 30 years Zavitz, through painstaking research, developed the first variety registered by the Canadian Seed Growers' Association... More than 95% of all soybeans produced in Canada are grown by approximately 17,000 growers who are mainly located in southwestern Ontario." Soybeans have become Ontario's third largest cash crop in dollar value, worth nearly $188 million to growers in the 1981-82 marketing year. Discusses the history and work of the Ontario Soya-Bean Growers' Marketing Board, established in 1949 under the Ontario Soya-Bean Growers' Marketing Plan. Each grower pays 90 cents/tonne to the Board. Address: Ontario.

1475. **Product Name:** Tofu, Soymilk, Soymilk Yogurt. **Manufacturer's Name:** Merrickville Bakery & Tofu. **Manufacturer's Address:** St. Lawrence Street, Merrickville, ONT, K0G 1N0, Canada. Phone: 613-269-3200.
**Date of Introduction:** 1983. September.
**New Product–Documentation:** Form filled out by Steven Rowat. He uses 2 lb/day of dry soybeans. The tofu shop does not have its own name. Started 15 Sept. 1983.

1476. Plenty USA. 1983. If we share there is more than enough to go around... Plenty (Brochure). Summertown, Tennessee: Plenty. 12 panels. Sept. 28 cm.
• ***Summary:*** This brochure, containing many photos, describes the activities of Plenty USA and Plenty Canada (R.R. 3, Lanark, Ontario, Canada K0G 1K0) worldwide, including Guatemala and the Caribbean. It is accompanied by a cover letter from David Purviance, Director, dated 10 September 1983.

Photos show: (1) Plenty volunteers in Solola, Guatemala, working on a water project. (2) A Mayan woman, in traditional Mayan dress, grinding soybeans on an ancient tool, the *metaté.* (3) Two young girls in Solola enjoying soy ice cream from Plenty's soy dairy. "A one-cup serving provides 20% of a child's recommended protein allowance." The Village Technology Training Center in Lesotho, with solar panels.

Note 1: This is the earliest document seen (July 2004) concerning Plenty International (called Plenty USA in the early days).

Note 2: This is the earliest document seen (July 2004) that uses the term "Plenty USA." Address: 156 Drakes Lane, Summerton, Tennessee 38483.

1477. Hobbs, E.H.; Muendel, H.-H. 1983. Water requirements of irrigated soybeans in southern Alberta. *Canadian J. of Plant Science* 63(4):855-60. Oct. [22 ref. Eng; fre]
• ***Summary:*** Water use peaked in late July or early August with a daily requirement of 7 mm. Address: Research Station, Agriculture Canada, Lethbridge, Alberta T1J 4B1, Canada.

1478. Kauffman, Harold E. 1983. Re: Soyfoods in Canada. Letter to Mr. Allan Praskin, 17968 Oak Drive., Los Gatos, CA 95030, Nov. 18. 1 p.
• ***Summary:*** "I am pleased to hear that you have established a soyfoods training center in Canada. I certainly will keep this in mind so if we identify people from developing countries who need that type of training we will know where to send them.

"I have talked to Bill Shurtleff and he said he will send you a copy of the proposal for an Asian soyfood network training program." Address: INTSOY Director, 113 Mumford Hall, 1301 W. Gregory Dr., Urbana, Illinois 61801. Phone: 217-333-6422.

1479. *Seed Trade News.*1983. Professors honored. Nov. 23.
• ***Summary:*** "Agronomists Jean Lambert and Steve Simmons received awards for their achievements in agronomy at the annual meeting of the American Society of Agronomy. Lambert, professor emeritus of agronomy and plant genetics at the University of Minnesota, received the Agronomic Achievement Award in crop science... Lambert's major contribution has been in the development of high-yielding soybean varieties adapted to northerly latitudes. The project that he directed has released 18 of these soybean varieties, which have been used extensively in the northern United States, Canada, and Europe... Both Lambert, who is now retired, and Simmons have been researchers for the University of Minnesota's Agricultural Experiment Station."

1480. *SoyaScan Notes.*1983. Recent changes on The Farm in Tennessee: The Changeover (Overview). Nov. 29. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** This overview was compiled after talks with several long-time members of The Farm in Tennessee. Many people have left The Farm. The population has dropped to about 700 from a peak of about 1,300 several years ago. Some feel that "the boat is sinking." The farm is now in a period of transition called "the Changeover." The reasons for this change in basic economic structure are quite complicated, but a major reason is the large population of people who did not have a paying job. Formerly everything on The Farm was collectively owned (there was no private property), and all income went into a common pool to pay the community's expenses. At the end of the changeover, each community member will be required to pay their own way, including monthly dues voted by the members for debt reduction plus ongoing community services: roads, water, fuel, taxes, bookkeeping, etc. However, the land and all other non-business community assets will continue to be held in common.

There are two types of work on The Farm: (1) "Service jobs" such as working on the Farm as a teacher, in the Soy Dairy, as a mechanic, etc. at a job which provides valuable services to Farm members but does not generate any income. (2) Money-making jobs, mostly off The Farm, and especially in construction–a construction crew of 40-50 skilled men brought in the majority of The Farm's income. The basic problem is that although everyone works every day, not enough people are making money. Summertown, in Lewis County, is in one of the poorer, rural parts of Tennessee, and there are not many paying jobs available in Summertown or the surrounding area.

The Farm worked very hard to create its own companies (such as Farm Foods and The Book Publishing Co.) that would employ members and earn money to support the community, but it took time for these companies to become profitable and, since they were collectively owned, they could not attract investors. When the changeover started, people working in community-owned businesses were given those businesses. For example, those working in the soy dairy when the changeover started, now owned it. They could sell the soyfoods they made both to community members and off The Farm; they shared the profits from their enterprise, and each used that income to buy whatever they needed.

Many Farm members agree that a basic part of the problem was The Farm's great generosity. They generously allowed almost everybody who came to the gate to join the Farm. Stephen went on tours in buses to talk about vital issues of the day; The Band went with him and neither ever charged people to hear them. The community generously helped those in need around the world, in part through Plenty a relief organization created on The Farm in 1974, and with much volunteer labor.

Over the years The Farm had to borrow money to pay its bills–just like most American families and businesses. The amount borrowed was not unreasonable given the size of the community, however these loans and the interest on them eventually so large that they were the main catalyst for the changeover. A large percentage of the early dues went toward debt reduction, enabling The Farm to pay off its total debt of $1.2 million in a little more than three years.

Many of those who left were the ones making money; some of them got tired of supporting the others.

The big change from a collective to a cooperative took place in mid-October 1983. Many people who had given all their money and personal possessions to The Farm and imagined living their entire lives there felt considerable bitterness and anguish; they often left with nothing but good memories and had begin to hunt for a job. People are now employed at and paid by The Book Publishing Co., Farm Foods, Solar Electronics, and Satellite Dishes. Things that used to be given away for free on The Farm (such as soyfoods made at the Soy Dairy) are now bought and sold. People can start their own business on The Farm. Its the "real world" now. The Farm still has big debts and could even dissolve. Big medical bills hurt The Farm. Plenty is totally independent of The Farm financially, and has grown much bigger. The Farm Soy Dairy has trained several hundred people from Third World countries over the years.

Plenty Canada is in Lanark, Ontario. They have a little basement tofu and tempeh shop, and want to make it a soyfoods training center.

1481. *Presse (La) (Montreal, QUE, Canada).*1983. Le "tofu" connait une faveur grandissante [Tofu wins growing favor]. Nov. 30. p. E-12. [Fre]
• ***Summary:*** Discusses Yvon Tremblay and Frances Boyte. A photo shows a package of Vitasoy. Address: Canada.

1482. **Product Name:** Soy Nibbles (Soymilk Ice Cream Sandwiches) [Raspberry, or Carob].
**Manufacturer's Name:** Soy City Soyfoods.
**Manufacturer's Address:** Toronto, Ontario, Canada.
**Date of Introduction:** 1983. November.
**How Stored:** Frozen.
**New Product–Documentation:** Soyfoods Newsletter. 1984. Jan. p. 1. Individually wrapped and round. The sandwich layers are wheat free, made with okara. Shurtleff & Aoyagi. 1985. Tofutti & Other Soy Ice Creams. p. 77.

1483. Weston Graham & Associates Ltd. 1983. Eastern Ontario soybean production and marketing feasibility study. Ottawa, ONT, Canada. 26 + 138 + 114 p. Nov. 28 cm. Looseleaf.
• ***Summary:*** This report was prepared largely by William W. Graham of Weston Graham & Associates for the Ontario Soya-Bean Growers' Marketing Board in cooperation with the Government of Ontario and the Government of Canada. Contents of Executive summary: Introduction. Soybean crop development needs: Producer problems and concerns, elevator operator problems and concerns, crusher problems and concerns. Conclusions and recommendations: The potential for increased soybean production, technology transfer and producer information needs, the potential for a new crushing facility in Eastern Ontario (250 tons/day at Prescott), additional handling and storage facilities for soybeans, servicing specialty food markets (natto, tofu). Summary of situation, requirements, effects and future scenarios of soybean production and Marketing in Eastern Ontario: Production, transportation/handling/storage, crushing, import and export markets.

Contents of main report: 1. Introduction. 2. Profile of production. 3. Soybean production and management. 4. Production potential. 5. Marketing and use patterns. 6. Market infrastructure options. 7. Opportunities and impacts. 8. Soybean development needs. 9. Recommendations and conclusions. List of 33 tables. List of 1 map and 2 figures.

Canadian soybean production has traditionally been restricted to the southernmost areas of Ontario. "The release of the soybean variety Maple Arrow in 1975 [developed by Dr. Donovan and Dr. H. Voldeng using Fiskeby V and Harosoy crosses] made commercial scale soybean production a reality in Eastern Ontario." Maple Presto, an extremely early maturing variety, was licensed and released in 1978, but it did not gain wide acceptance due to its relatively low yields. In 1981 Maple Amber was released and has since become popular in shorter-season zones; its yields are generally only a little less than Maple Arrow. Maple Arrow is currently the variety most widely grown in

Eastern Ontario. “Soybeans have been grown in Eastern Ontario since the mid-1930s, but until recently were only produced on a very limited scale. During the 1940s and 1950s Dr. Dimmock carried out a research program at the Central Experimental Farm in Ottawa. Varieties such as Comet, Crest, and Acme were adapted to the short season...” In 1976 only 462 acres of soybeans were grown in Eastern Ontario and most of these (197 acres) were grown in Glengarry County. But in 1981 some 11,089 acres of soybeans were grown in Eastern Ontario; the 3 top counties were Prince Edward (4,263 acres), Dundas (1,474 acres), and Ottawa/Carleton (1,129 acres). Since the 1981 census of agriculture, soybean acreage has more than doubled, to an estimated 23,000 acres in June 1982.

In Quebec province, only 66 acres of soybeans were grown in 1961, rising to 1,234 acres in 1971 and 3,555 acres in 1981. The main soybean growing counties in southern Quebec in 1981 were Richelieu (1,840 acres) and SW Montreal (1,333 acres). Address: 1684 Woodward Dr., Suite 217, Ottawa, ONT, K2C 3R8 Canada. Phone: (613) 225-0226.

1484. Shurtleff, William; Aoyagi, Akiko. 1983. History of soy flour, grits, flakes, and cereal-soy blends. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 128 p. Dec. 24. Unpublished typescript.

• ***Summary:*** A comprehensive history of the subject. Contents: Part I: What are soy flour, grits, flakes, and cereal-soy blends? Introduction: Developed in the West, difference from roasted soy flour. Soy flour. Soy grits and flakes. Cereal-soy blends = soy-fortified blended foods. Etymology and nomenclature: German, French, U.S. English, U.S. whole soy flour, British English. Overview of world soy flour history. Part II: History of soy flour, grits, and cereal-soy blends in Europe and Australia. The early years (1767 to 1899). 1900 to 1919. Between two wars (1920-1939). 1940-1959. 1960 to 1983. Part III: History of soy flour, grits, flakes, and cereal-soy blends in the USA. The early years (1767-1919). 1920 to 1939. The 1940’s and World War II. 1960 to 1980’s. Food for Peace Program. Low cost extrusion cookers. Soy flour, grits, and flakes in America. Part IV: History of soy flour, grits, and cereal-soy blends in Canada. Part V: History of soy flour, grits and cereal-soy blends in Asia. Introduction. Bangladesh. China. India. Indonesia. Japan. Korea. Philippines. Sri Lanka. Taiwan. Thailand. Vietnam. Part VI: History of soy flour, grits, and cereal-soy blends in Latin America. Introduction. Bolivia. Brazil. Chile. Colombia. Costa Rica. Ecuador. Guatemala. Guyana. Mexico. Paraguay. Peru. Venezuela. Part VII: History of soy flour, grits, and cereal-soy blends in Africa. Introduction. Ethiopia. Ghana. Kenya. Nigeria. Rwanda and Burundi. South Africa. Tanzania. Uganda. Zimbabwe. Part VIII: History of soy flour, grits and cereal-soy blends in the Middle East.

Note: This is the earliest English-language document seen (July 2003) with the term “cereal-soy blends” in the title. Address: Lafayette, California. Phone: 415-283-2991.

1485. Plenty. 1983. Plenty Caribbean Project report (Brochure). Summertown, Tennessee: Plenty. 12 p. Dec. 28 cm.

• ***Summary:*** “Plenty USA began to research the Caribbean island nations to our south in early 1982. Plenty Canada agreed to a joint project, and the wheels began to turn. We contacted some friends in Europe who owned a 105' sailing ship, the ‘Fri.”

“In October 1983, directors from Plenty followed up their research with a three-week visit to six of the poorest Caribbean islands... Choosing from among projects that Plenty has undertaken in other parts of the globe, the Integrated Soy Project was by far the one most often requested by the islanders.” On 15 May 1983 a sailing ship named Fri was dispatched from St. Augustine, Florida, to visit the islands with 96 crates of tools, equipment, and food. It stopped in ports at Barbados, St. Vincent, St. Lucia, Dominica, Antigua, and Haiti, before finally returning to Florida on August 19. There is now a soy project in St. Vincent.

Photos show: (1) Six black members of the Tirocher Society standing outside their building. “Using seed provided by Plenty, members of a co-op in St. Lucia are trying to break the monocrop mold by growing soybeans and vegetables.” (2) The Plenty office crew in Tennessee, including Albert Bates, David Purviance, Patrick Thomas, and Stephen Gaskin. A form invites donations for several projects including “Soyfoods development in the Caribbean islands.” Plenty is a non-profit international development corporation. (3) Plenty’s Village Technology Center in Lesotho. Its electricity is provided by a panel of solar cells. Address: 156 Drakes Lane, Summerton, Tennessee 38483.

1486. **Product Name:** [Vitasoy Tofunaise. (No Eggs Tofu Salad Dressing)].
**Manufacturer’s Name:** Mandarin Enterprises Ltd.
**Manufacturer’s Address:** No. 13-12200 Vulcan Way, Richmond, BC, V6V 1S8, Canada.
**Date of Introduction:** 1983.
**Ingredients:** Tofu, sunflower oil, apple cider vinegar, honey, sea salt.
**Wt/Vol., Packaging, Price:** 375 ml.
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 1983, undated. 2.75 by 2 inches. Self adhesive. Red and blue on gold.

Label shown on color brochure sent by Gerry Blanchard of Natural Promotions, Vancouver, BC, Canada. 1992. Jan. 22. His company developed a new label for this product. The term “Vitasoy” is not presently visible.

1487. Carroll, K.K. 1983. Dietary proteins and amino acids–Their effects on cholesterol metabolism. In: M.J. Gibney and D. Kritchevsky, eds. 1983. Animal and Vegetable Proteins in Lipid Metabolism and Atherosclerosis. New York, NY: Alan R. Liss, Inc. ix + 177 p. See p. 9-17. (Current Topics in Nutrition and Disease, Vol. 8). Illust. Index. 24 cm. [27 ref]
• ***Summary:*** Contents: Introduction. Further studies on effects of dietary proteins and other dietary components on plasma cholesterol levels in rabbits. Amino acid composition of dietary proteins in relation to their effects on plasma cholesterol levels. Studies on mechanism of action of dietary protein. Effects of dietary protein on plasma cholesterol levels in humans. Acknowledgments.

"Our interest in the effects of dietary proteins and amino acids on cholesterol metabolism arose from our attempts to understand why rabbits become hypercholesterolemic and develop atherosclerosis when fed semipurified diets without added cholesterol, as reported by Lambert et al. [1958] and Malmros and Wigand [1959]. By varying the composition of the semipurified diet, we were able to show that the effects were associated with the casein commonly used as the protein component of semipurified diets, and could be prevented by replacing the casein with soy protein [Hamilton and Carroll, 1976]." Address: Dep. of Biochemistry, Univ. of Western Ontario, London, ONT, N6A 5C1, Canada.

1488. Eggum, B.O.; Beames, R.M. 1983. The nutritive value of seed proteins. In: W. Gottschalk and P. Hermann, eds. 1983. Seed Proteins: Biochemistry, Genetics, Nutritive Value. The Hague, Boston, and London: Martinus Nijhoff / Dr. W. Junk. viii + 531 p. See p. 499-531. [87* ref]
Address: 1. Animal Physiology and Chemistry, National Inst. of Animal Science, Copenhagen, Denmark; 2. Dep. of Animal Science, Univ. of British Columbia, Vancouver, BC, Canada.

1489. Harper, Cretia. 1983. Tofu, I love you: Recipes for a healthy heart. British Columbia, Canada: Wings Publications. 43 leaves. Illust. No index. 22 cm.
• ***Summary:*** At the top of the cover is written: "A beginner's guide to using and loving tofu." Contents: Dedication and acknowledgements. Forward: A love story. Did you know...? About these recipes. Before you begin. About marinades. About these recipes. Before you begin. About marinades. Basic blended tofu. Tofu dip variations. Tofu mayo and dressing. Shake 'n' broil coating mix. Basic scrambled tofu. Main dishes. Tofu burgers, hot dogs, sandwiches. Salads. Soups. Sweets. Beverages. A special note to parents. About the author.

Cretia and her family live on Vancouver Island, BC, Canada, where she is a natural foods consultant and educator–and a devout Christian. Address: 3053 Jenner Rd., Victoria, BC, Canada.

1490. Rennie, Robert J.; Dubetz, Steve. 1983. Soybeans as a nitrogen-fixing crop. In: Research Highlights, Agriculture Canada, Research Station, Lethbridge. See p. 76-80. *
Address: Lethbridge, Alberta, Canada.

1491. Sosulski, Frank W. 1983. Legume protein concentration by air classification. *Developments in Food Proteins* 2:173-213. Chap. 5. (B.J.F. Hudson, ed. London and Englewood, New Jersey: Applied Science Publishers). [61* ref]
Address: Prof. of Crop Science, Univ. of Saskatchewan, Saskatoon, SASK, S7N 0W0, Canada.

1492. *USDA Plant Inventory.*1983. Plant material introduced January 1 to June 30, 1980 (Nos. 436991 to 443013). No. 188, Part I. 529 p.
• ***Summary:*** Soybean introductions: *Glycine max* (L.) Merrill. Fabaceae.

"Donated by Dr. N.I. Korsakov, Division of Grain Legume Crops, N.I. Vavilov Institute of Plant Industry, Leningrad, Soviet Union." All these varieties are designated "VIR" (Vavilov Inst.).

437069-437085. Amur Region and Far East

437124-437128. Gurijscaja and Imeretinscaja, Georgian SSR.

437129A-B. Irkutsk Region (Oblast) of Russia.

437130-437134. Gibrid ASS, Kazakh SSR.

437135-437148. Khabarovsk Province, USSR [on right bank of Amur River]

47149-437171. Krasnodar Province, USSR.

437172-437175. Kuybyshev Region, USSR.

437176-437178. Latvian SSR.

437179-437188. Lithuanian SSR.

437189-437303. Bel'tscaja, Bessarabea, Biruintsa, Brynzenscaja, Corichevava, CSchi, Dobruzanca, Errj, Moldavscaja, Rajner, Scorospelca, Staroucrainea, Vengerca nizcaja, Vysocoroslaja, Moldavian SSR.

437304. Moscow Region. 437305-437312. North Osetian [Ossetian] ASSR (An autonomous republic in the southeastern Russian SFSR on the north slopes of the Central Caucasus Mountains, bounded on the north by Stavropol Kray; Renamed Alania in 1991; capital Vladikavkaz).

437313-437315. Novosibirsk Region, USSR.

437316-437520. Primorsky Province, USSR [Maritime Province in Russian Far East, bordering on Sea of Japan, China and North Korea. Administrative center and soybean port: Vladivostok].

437521. Stavropol Province, USSR.

437522. Tshuvashskaja ASSR.

437523-437524. Turkmen SSR.

437525-437549. Ukranian SSR.

437550. Uzbek SSR (later Uzbekistan).

437551-437552. Voranezh Region, USSR.

437553-437813. Peoples Republic of China.

437814-438273. China, Northeast [formerly Manchuria] incl. Charbin [Harbin], Elita, Manczurscaja.

438274-438295. Japan (many named varieties).

438296-438309. South Korea (Republic of Korea).

438310-438312. North Korea.

438312-438341. Algeria.

438342. Argentina.

438343-438513. Australia, Bulgaria, Canada, Czechoslovakia, France, West Germany, East Germany, Hungary, India, Indonesia, Israel, Italy, Morocco, Nepal, Netherlands, Poland, Portugal, Romania, Sweden (13 Fiskeby varieties), United States (26 named varieties), Yugoslavia.

440913. Wild soybean from China. "Donated by Kirin Academy of Agricultural Sciences, Kungchuling, Kirin Province. Received through W.O. Scott, Dep. of Agronomy, Univ. of Illinois, Urbana. Received March 1980. Collected 1979.

440927-440943. *Glycine canescens* F.J. Herman. From Australia. "Donated (but not collected) by T. Hymowitz, Dep. of Agronomy, Univ. of Illinois, Urbana. Received Aug. 1979.

440944-440974. *Glycine clandestina* Wendl. From Australia. Donated by T. Hymowitz.

440975. *Glycine falcata* Benth. From Australia. Donated by T. Hymowitz.

440976-440977. *Glycine latrobeana* (Meissn.) Benth. From Australia. Donated by T. Hymowitz.

440978-440980. *Glycine latifolia* (Benth.) Newell & Hymowitz. From Australia. Donated by T. Hymowitz.

440981. *Glycine tabacina* (Labill.) Benth. From Fiji. Donated by T. Hymowitz. Collected 1930. Sigatoka, Viti Levu, Fiji. Collected by Greenwood. Wild.

440982-440997. *Glycine tabacina* (Labill.) Benth. From Australia. Donated by T. Hymowitz.

440998-441011. *Glycine tomentella* Hayata. From Australia. Donated by T. Hymowitz.

441012-441013. *Glycine tomentella* Hayata. From China. Donated by T. Hymowitz.

441339-441383. *Glycine max* (L.) Merr. Soybean. From Indonesia (East Java, Central Java, West Nuca Tanggara [West Nusa Tenggara, incl. Lombok and Sumbawa islands, in eastern Indonesia]). Donated by S. Djojoderdjo and Soebekti, Univ. of Gadjah Mada, Jogjakarta [Yogyakarta].

442003-442004. From China, Peoples Republic of. Donated by Institute of Crop Breeding and Cultivation, Chinese Academy of Agricultural Science, Beijing. Received through G. Liang, Dep. of Agronomy, Kansas State Univ., March 1980.

442005-442021. From South Korea. "Donated by Applied Genetics Laboratory, Korea Atomic Energy Research Inst., Seoul Received through R. Loiselle, Plant Gene Resources of Canada, Ottawa.

442022-442045. *Glycine max* (L.) Merr. Soybean. From Poland. "Donated by Plant Breeding and Acclimatization Inst., Radzikow / Warszawy. Some also from the Soviet Union and Yugoslavia.

442834. *Glycine max* (L.) Merr. Soybean. From China, Peoples Republic of. "Donated by T.C. Tso, Tobacco Laboratory, USDA, Beltsville, Maryland." Collected from a market near Quilin, Kwansi Province.

Note: In Part II: 445842-445849. From. Thomas A. Lumpkin, Zhejiang Academy of Agricultural Sciences, Hangzhoe, Zhejiang, China. Address: Washington, DC.

1493. Yeo Hiap Seng Ltd. 1983. Yeo's quality foods and beverages. Singapore. 25 p. [Eng]

• ***Summary:*** "Yeo Hiap Seng's heritage dates back to 1900 in China. The Company started operations in Singapore in 1935, as a manufacturer of fine soya sauces." A photo shows the store front at one of its early locations. Many color photos show the company's products, which include the following soyfood products: Soy sprouts, salted black beans, salted yellow beans, hoi sin sauce, crushed yellow bean sauce, black bean sauce, salted soya beans, soy sauces (light or dark), and Yeo's soya bean drink (canned). Most product names are given in English, French, and Chinese. The company has offices (whose address and phone are given) in Singapore, Malaysia, Hong Kong, United Kingdom, USA (San Jose, California), and Canada (Richmond, BC). Address: Singapore.

1494. **Product Name:** [Tofu Dip].
**Manufacturer's Name:** Les Aliments Multisoya.
**Manufacturer's Address:** 1925 Route 139, Roxton-Sud, QUE, J0H 1Z0, Canada.
**Date of Introduction:** 1983?

1495. **Product Name:** Soysage (Meatless Okara-based Sausage).
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2849 Dundas St. W., Toronto, ONT, M6P 1Y6, Canada. Phone: (416) 762-1257.
**Date of Introduction:** 1983?
**New Product–Documentation:** Leaflet. About 1983, undated. Brown on yellow. 6 panels. Defines Soysage and contains recipes for: Soysage pizza sandwich. Sliced soysage sandwich. Soy burgers. Soyballs and Gravy with rice. Soysage casserole. Stuffed zucchini.

1496. Vansickle, Janice. 1984. Soybean growers would participate in insurance plan. *Windsor Star (Essex County, Ontario, Canada).* Jan. 11. p. D1.

• ***Summary:*** Essex County soybean growers are discussing contributing to an insurance fund to protect their interests when grain elevators run into financial trouble. About 60 growers attended a county meeting of the Ontario Soya-Bean Growers Marketing Board, whose chairman is Peter Epp, a Leamington grower. Address: Star agriculture reporter.

1497. Shin Mei Do Miso. 1984. Denman Island Miso (Unpasteurized) (Leaflet). Denman Island, British Columbia, Canada. 1 p. Front and back. 22 cm.
• ***Summary:*** Side 1 is an introduction to miso plus one recipe and a plug for *The Book of Miso*, by Shurtleff & Aoyagi. Side 2 is 4 miso recipes. Printed with brown ink on beige paper. Address: Denman Island, BC, Canada, V0R 1T0.

1498. *Soybean News.*1984. 63 commercial [soybean] breeders. 35(1):1. Jan.
• ***Summary:*** "The Commercial Soybean Breeders organized in February, 1977. The membership included 35 individuals located in 15 states who were employed by 28 companies.

"By 1979 the number of breeders in the organization totaled 39 and by 1981 it increased to 51.

"There are 30 companies employing 63 breeders in CSB today. The breeders are stationed in 16 states and in 3 locations in Canada."

1499. Lo, Yvonne. 1984. Founding and history of Vitasoy (USA) Inc. (Interview). Conducted by William Shurtleff of Soyfoods Center, Feb. 10. 2 p. transcript.
• ***Summary:*** Yvonne had the idea and took the risk. The Soya Bean Products Co., N.A. Inc. was incorporated in Jan. 1979. It was a marketing Co. Yvonne and Irene Lo (her sister) were equal stockholders. She was now an entrepreneur. Their first office was (in Jan. 1979) was on Bush St., then they moved to 185 Berry St., then to 435A Brannan St.

In April 1982 Yvonne and Irene sold their company to the parent company, Hong Kong Soya Bean Products Co., Ltd. (HKSBP, founded by her father, K.S. Lo), when the parent company got serious about the U.S. market. They made good money from the sale, and plan to use it to raise capital and facilitate long-term operations. Yvonne's company is now an affiliate of HKSBP, and she owns none of it.

Yvonne graduated from a Canadian university and worked as a city planner for 6 years in Toronto, Ontario. She decided to drop her professional career to become a soy entrepreneur. She felt she was more suited for business; her heart was in marketing. So in early 1979 she switched careers and professions. She had done nothing with her father's company (HKSBP) before starting her own company.

In the early 1970s, HKSBP started using the dry process for making soymilk; before that it had used the typical wet-grind process. Address: 435A Brannan St., San Francisco, California 94107.

1500. Shurtleff, William; Aoyagi, Akiko. 1984. K.S. Lo and the history of Vitasoy in Hong Kong and North America. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 24 p. Feb. 10. Unpublished typescript.
• ***Summary:*** A comprehensive history of the subject. Contents: Introduction. The early years (1910-1944): Birth and education (K.S. Lo was born on 2 Feb. 1910), Julian Arnold's speech on soybeans in 1937, 1939 refugee camp in Kowloon, sets up soymilk shop, sees potential, sets up The Hong Kong Soya Bean Products Company (HKSBP) with 4 friends in 1939, hard times, spoilage, work with Dr. Y.T. Chiu, schools accept soymilk, Howard Hoover, HKSBP goes broke 1941, refugee in Free China during Japanese occupation of Hong Kong. Starting over (1944-1959): Sold in milk bottles through soft drink outlets as a noncarbonated beverage, new market of common people, instant success, started adding vitamins 1948, franchise for Greenspot orangeade, new plant in Aberdeen, Hong Kong, first sterilized soymilk allowing long shelf life 1953, breakthrough greatly increased demand, competitors forced change of name from Vitamilk to Vitasoy in 1953, other companies copy soft-drink marketing approach, UNICEF interest, train Indonesian technicians, granted Pepsi-Cola bottling franchise in 1957, sold Vitasoy heated during cold months. The 1960's continuing growth: Five-fold growth from 1955-1960, start of mass promotion, slogan "Vitasoy makes you taller, stronger, and more attractive," Hong Kong's best selling soft drink in 1962, introduction of malt Vitasoy, new Kowloon plant built 1962-1963, 1964 presentation of paper at UNICEF symposium in Tokyo, choice of Monsanto to market Vitasoy world-wide, their lack of food experience a problem, media coverage, multinationals follow Coca Cola's lead and start producing soymilk. The 1970's, diversification and internationalization: Sons' new products fail due to poor marketing, conversion to dry process for making Vitasoy, drop in sales due to inflation and depression, four major decisions, new slogan "Vitasoy is more than just a simple soft drink," introduction of Tetra Brik cartons, diversification into fruit drinks and teas, ending of Pepsi franchise 1977, strong sales rebound after 1975, new Aberdeen plant 1978, addition of carbonated soft drinks to product line summer of 1978, Lo's retirement 1978, leadership of HKSBP to 2 sons, refugee feeding from 1975 on, diversification into dairying 1979, start of export to world market in 1979, overview of market position, competition, new slogan "Taste the feeling" in 1983, prices and ingredients, China's big potential. Vitasoy in North America: First Asian soymilk imported to North America,

The Soya Bean Products Co., N.A. Inc. (SBPC) incorporated in San Francisco, California, by Lo's 2 daughters as marketing company, SBPC sold to HKSBP and renamed Vitasoy USA, Inc. in 1982, 60% sales increase, extensive market research on American attitudes and taste preferences, announcement of American products and soymilk plant in CA. The present and future: Same problems as Kikkoman in expanding into world market, changing future markets. Address: Lafayette, California. Phone: 415-283-2991.

1501. Yoshihara, LuLu. 1984. Re: Varieties of Shin-Mei-Do miso, ingredients, ages, and prices for 10 lb post paid. Letter to Lorenz A Schaller, California, Feb. 13–in reply to inquiry. 1 p. Handwritten, with signature on letterhead.
• ***Summary:*** Red miso, 1½ years, $25.15. Barley miso, 2 years, $25.15. Brown rice miso, nearly 3 years, $26.35.

A business card (printed with brown ink on beige paper) accompanies the letter.

1502. United Press International (UPI). 1984. 'McDonald Duck' attack hits China. *Toronto Star (Ontario, Canada).* Feb. 20. p. A3.
• ***Summary:*** "China is about to open its first Western-style fast food restaurant, using Donald Duck to lead the hamburger and french fries revolution. Other foods on the menu will be hot dogs, ice cream cones, and box lunches.

The Peking restaurant is named Yi Li Fast Food–Yi Li being the name of Peking's best-known bakery, which will supply the buns. The red neon sign is in English, not Chinese, and all the furniture (tables, chairs in the 60-seat dining area) and atmosphere is Western. Large pictures of American cartoon character Donald Duck are on the walls inside, on the food packaging, and even on the roof.

"For the less adventurous, traditional Chinese snacks of soybean milk, salted duck eggs and long slabs of fried dough sticks will be sold."

1503. **Product Name:** Tempeh.
**Manufacturer's Name:** Cheribon Foods.
**Manufacturer's Address:** 7223B–101 Ave., Edmonton, ALB, T6A 0H9, Canada.
**Date of Introduction:** 1984. February.
**New Product–Documentation:** Letter from Max Pierolie (or spelling may be Pieroelie, or Periolie), tempeh maker. 1985. July 4. They use 50 lb/day of soybeans.

1504. **Product Name:** Tempeh Burger.
**Manufacturer's Name:** Cheribon Foods.
**Manufacturer's Address:** 7223B–101 Ave., Edmonton, ALB, T6A 0H9, Canada. Phone: 403-462-1097.
**Date of Introduction:** 1984. February.
**New Product–Documentation:** Letter from Max Pieroelie, tempeh maker. 1985. July 4. They use 50 lb/day of soybeans.

1505. Shurtleff, William; Aoyagi, Akiko. 1984. Soymilk industry and market: Worldwide and country-by-country analysis. 2 vols. Lafayette, California: Soyfoods Center. Vol. 1, 199 p. Vol. 2, 100 p. Feb. 28 cm. [165 ref]
• ***Summary:*** A comprehensive overview, worldwide, with extensive historical information. The first study of its type, with many statistics, graphs, and tables. Volume 1 is the market study, and Volume 2 is black-and-white copies of soymilk labels and other graphics. Contents: 1. Introduction. 2. Directory of soymilk manufacturers and related companies worldwide. 3. Definitions and varieties of soymilk. 4. Overview of world soymilk industry and market, and future outlook. 5. United States soymilk industry and market. 6. Japan. 7. Korea. 8. China. 9. Taiwan. 10. Hong Kong. 11. Singapore and Malaysia. 12. Southeast and South Asia: (13. Vietnam. 14. Thailand. 15. Philippines. 16. Indonesia. 17. India. 18. Sri Lanka). 19. Europe (Incl. Plamil Foods in England, Tetra Pak Group in Sweden, Alfa-Laval and John Wilson in Sweden, Danish Turnkey Dairies–DTD and Soya Technology Systems (STS), Alpro/Vandemoortele in Belgium, Nestle, F. de Selliers in Belgium, Dansk Soyakagefabrik in Denmark, Lima Andiran in France, Galactina in Belp, Switzerland, and Semper A.B. in Sweden).

20. Latin America. 21. Africa. 22. History of Vitasoy in Hong Kong. 23. Two modern soymilk manufacturing processes: Marusan and Alfa-Laval. 24. Etymology of the word "soymilk" worldwide. 25. Analysis of ingredients in 49 popular Japanese soymilk products. 26. Bibliography. 27. About the Soyfoods Center. A table on p. 12 gives an overview of world soymilk production in 1983 ranked in descending order of annual per capita consumption. These statistics do not include China (PRC) or soy-based infant formulas, usually made from soy protein isolate. 1. Taiwan, 210 million liters, 11.1 liters/capita, growing at 30% per year. 2. Hong Kong, 39.1 million liters, 7.5 liters/capita, growing at 10% per year. 3. Singapore, 11.2 million liters, 4.7 liters/capita, growing at 15% per year. 4. South Korea, 67.0 million liters, 1.60 liters/capita, growing at 60% per year. 5. Malaysia, 21.4 million liters, 1.53 liters/capita. 6. Japan, 131.8 million liters, 1,10 liters/capita, growing at 101% per year. 7. Thailand, 50.0 million liters, 1.00 liters/capita. 8. USA, 9.6 million liters, 0.04 liters/capita. Total world production: 548.3 million liters.

Page 36 gives an overview of the U.S. market for soy-based infant formulas and adult soymilk. Production of soy-based infant formulas (on a ready to serve basis) in 1983 was as follows: Ross Laboratories made 14,720,000 gallons of Isomil (i). Mead Johnson made 14,080,000 gallons of Prosobee. Loma Linda made 2,240,000 gallons of Soyalac. And Wyeth Labs made 960,000 gallons of Nursoy. Thus

32,000,000 gallons of soy-based infant formula were made in the USA in 1983.

Also in 1983, consumption of soymilk by adults in the USA was as follows: 1,743,000 gallons were made by specialized soymilk manufacturers in the USA (Loma Linda Soyagen 1,000,000 gallons; Worthington Soyamel 670,000 gallons, Miller's Soy (private label) 73,000 gallons). 690,000 gallons were imported (328,000 gallons of Vitasoy by Vitasoy USA, 254,000 gallons of Yeo's by YHS, 50,000 gallons of Edensoy by Eden Foods, 25,000 gallons of President by President, 25,000 gallons of Kibun by Kibun, 8,000 gallons of To-Neu by San-J International). 250,000 gallons were made fresh by tofu companies (45,000 gallons by Mighty Soy, 41,000 gallons by Victor Foods [Scarborough, Ontario, Canada], 39,000 gallons by Quong Hop & Co., 35,000 gallons by Wy Ky, and 90,000 gallons by others).

Yield. 1 ton of raw soybeans yields approximately 4,320 gallons of soymilk. Conversion: 3.785 liters = 1 gallon. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

1506. Slough, David. 1984. Milk of human ingenuity and entrepreneurial skill. *Asian Business* 20(2):21-23. Feb. Cover story. See also related article on page 27.
• ***Summary:*** Discusses Hong Kong Soya Bean Products Co. Ltd.'s new connections with China. "The privately owned mini-transnational beverage maker's first product, Vitasoy, was made from China-sourced soyabeans and its latest product, milk, comes from the dairy farm it established in Guangdong province. The author repeatedly gives the company's name as "Vita."

In 1982 the company had an authorized and paid-up capital of HK$210 million, 70% of which was owned by the Lo family, with the rest privately disposed among more distant relatives and friends. Turnover that year was HK$244 million, and the profits are estimated at 15-20% of turnover. A fair market value for the company is estimated at about HK$750 million.

"Those figures demonstrate quite remarkable growth for a traditional Chinese family-run company formed in 1940 with an initial capital of only HK$18,000. In its first year of operation turnover based on a single product operation was less than HK$90,000. It had 20 employees then and operated in rented premises. Despite a close-down during the Japanese occupation and a financially disastrous entry in the early 1970s into the fast food business, the company enjoyed steady growth to the mid-1970s and impressive growth thereafter."

"In Hong Kong, Vita owns assets valued at HK$220 million, it operates two plants with a combined floor area of 38,000 square meters, and has a labour force of 950. Production of beverages is running in excess of 12 million 24-unit cases per year. It supplies something like 30% of the local soft drinks market."

But now the company is diversifying into dairy milk. In China, Vita has a 5-year compensation trade agreement with the Guangdong Province Guangming Overseas Chinese farm where 1,200 people and 3,500 milch cows produce 8,000 tonnes of fresh milk a year. That agreement cost the company HK$22.7 in borrowed investment capital. Vita has used that milk to capture 60% of the Hong Kong milk market. Vita looks all set to monopolize the Hong Kong fresh milk market by late 1987. "Under that agreement, Vita provided the livestock, technological know-how, equipment, managerial expertise and market for the product of 4 dairy farms and a centralised milk processing facility."

The dairy farm isn't Vita's only investment in China. In late 1983 Winston Lo signed a US$5 million joint venture agreement to establish a vegetable processing facility in Guangdong province. It will pack and chill up to 20 tonnes of green leaf vegetables a day, for sale in Hong Kong.

"Vitasoy was the company's sole product–ignoring a venture into fast foods–until 1976. Turnover rose from HK$87,000 in 1941 to HK$3.3 million by 1955, HK$12.6 million by 1965 and HK$40.2 million by 1975. In 1975, while founder K.S. Lo was still at the helm, Vita installed the first Tetra-brik packaging line in Hong Kong and launched the UHT version of Vitasoy. The time, the product and the packaging were right. Sales took off. Under Winston Lo, Vita then decided to branch out into the packaging of juices. It started with orange, mango, guava and kalamansi and captured 30% of the fruit juice market in just 2 years. Chrysanthemum tea, lemon tea, herbal tea, lime juice and cane juice soon followed. Other lines and carbonated drinks (orange, cola, cream soda and root beer) were added to give Vita a product for every sector of the soft drink market. Vita products are now exported."

"Vita now purchases at least 50% of its soyabeans from Canada and the USA–despite the fact that soya beans from those countries have been developed for oil extraction rather than protein extraction (the latter is the case with Chinese soyabeans) and therefore give a lower protein yield. There are no plans for a public flotation of shares in Vita. Founder K.S. Lo is still wielding considerable power as chairman of the board of directors. Day to day management is in the hands of managing director Winston Lo and deputy managing director Frank Lo."

1507. **Product Name:** Tofu.
**Manufacturer's Name:** Yat Sun Food Products Ltd.
**Manufacturer's Address:** 12531–126 Street, Edmonton, ALB, T5L 0X3, Canada. Phone: 455-8787.
**Date of Introduction:** 1984. February.
**New Product–Documentation:** Letter from Kenson Quan. 1984. March 20. They started production in Feb. 1984. Kenson is a younger member of the family. His uncle is

Kenneth Quan. The family has made bean sprouts for years. Still active in May 1991.

1508. Halter, Fran. 1984. A committed tofu true-believer spreads the word about the curd. *Gazette (The) (Quebec).* March 5. [Eng]

• ***Summary:*** Norbert Argiles, age 43, of Unisoya in Quebec "is philosophically dedicated to placing tofu in every household refrigerator." A native of Catalonia, a region in Spain, he has been preaching the nutritive value of tofu since the 1960s. "In 1978, Argiles decided to quit talking and start acting on the value of the high-protein food. He left a job in quality control at a major Montreal aircraft-engine manufacturer and invested a total of $7,000 to open the first Quebec-based business to produce tofu on a large scale.

"'When I first started, I used to go to stores and people looked at me like I was selling moon rocks,' said the 43-year-old businessman... 'But patience and a strenuous sales effort have convinced them of the value of tofu.'

"Unisoya Inc.'s plant, nestled in the picturesque Laurentian community of Prevost, 75 kilometers north of Montreal, is a converted warehouse and the simple executive office is housed in a trailer." To finance his fledgling operation, Argiles sold granola bars and unsweetened canned fruit on the side. "Unisoya is now producing an average of 5,000 pounds of tofu a week, up from 200 pounds a week at the start of the operation five years ago. The tofu wholesales at $1 a pound in 15-pound pails, or slightly more in prepackaged pound blocks.

"Sales for fiscal 1983 ended May 31 were $200,000. Argiles projects that the figure will increase 30 to 60 per cent in fiscal 1984 as Unisoya develops new markets in the province and begins to sell to a major grocery chain with stores across Quebec... Argiles estimates Unisoya's market share might be as high as 40 per cent, but competition from several new Quebec tofu producers, which have recently entered the market, has left him with little profit... Argiles spent $15,000 last year to promote tofu and said he hopes that once he makes 'a breakthrough' in public awareness, tofu will become a dietary staple."

Each week Argiles uses 3,500 lb of locally grown soybeans that have not been treated with chemicals. His water comes from a well drilled below his tofu factory. Address: Canada.

1509. Henningsen, Peter. 1984. Re: Growing soybeans in Nova Scotia. Improving tempeh incubator. Letter to William Shurtleff at Soyfoods Center, March 15. 2 p. Typed, with signature on letterhead.

• ***Summary:*** Peter is working for Wolfgang Furth-Kuby, translating *The Book of Tempeh*, by Shurtleff and Aoyagi, into German. He and his wife now live at exactly 45 degrees north latitude. All of Germany and most of France is far north of their home. "Soybeans are grown commercially in the Annapolis Valley of Nova Scotia, one of the best areas in Canada for growing apples..." Statistics show that production of pedigreed soybean seed production in Nova Scotia was 17,367 kg in 1979 and 7, 167 in 1980.

Peter and his wife live in a very good microclimate in zone 5b. "Our problem here is that the soil keeps very cold long into the spring, and soybeans need fairly warm ground to germinate–otherwise they will hesitate and be overtaken by rot. So I plan to plant my soybeans by the middle of June, which leaves me with 105 or maybe even 120 days before the first frost." The climate of Nova Scotia during the summer gets very hot during the day–very similar to the climate of Brazil in summer.

"By the way, I think you could improve upon [the design of] your small incubators [for making tempeh at home] by putting the heat source at the bottom and using a low-temperature heat source like a mini-greenhouse heating cable (light bulbs give off so much radiant heat that heats only the surface it strikes)." Address: RR#1 Walton, Nova Scotia, Canada B0N 2R0.

1510. Robert-Stolow, Johanne B. 1984. Ingredient listing for tofu ["Soymilk" acceptable term for use in Canada]. Manufactured Foods Div., Consumer Products Branch, Hull, Quebec, Canada. 1 p. March 21. Unpublished manuscript.

• ***Summary:*** "To: Regional Managers Attention: Regional Food Specialists in Halifax, Toronto, Winnipeg, Vancouver.

"Subject: Ingredient listing for TOFU. At a recent meeting with Agriculture Canada, it was agreed that the term, 'soymilk' would be the acceptable designation for the aqueous extract of soybeans used in the manufacturing of TOFU. This decision was based on a review of the research literature where the term 'soymilk' has been in use for 60 years or more. It can therefore be argued, as in the case of cocoanut milk, that the common name 'soymilk' is well established within this particular trade, thus barring any objection from the dairy industry.

"'Soymilk' is obtained via the following process... (A flowchart is given). The soymilk is then processed further to produce the TOFU.

"Please be advised that we will be recommending the use of this name and of its French equivalent "jus de soya" (MAPAQ) for labelling. For the sake of uniformity, we would appreciate your doing likewise. We thank you in advance for your cooperation in this matter."

Note: Victor Food Products of Toronto petitioned the government to legalize use of the word "soymilk" in labeling tofu. Address: Manufactured Food Div., Consumer Products Branch, Government of Canada, Hull, Quebec.

1511. Vansickle, Janice. 1984. Bean worth weight in gold. *Windsor Star (Essex County, Ontario, Canada).* March 26.

p. B1-B2.
• ***Summary:*** Soybeans are now Essex County's major field crop and the third largest cash crop in Ontario province (with a value of more than $203 million in 1982), but few people know what happens to the golden nuggets after they leave the farm. Most of the soybeans are crushed in Canada to make soybean oil and meal. Last week the Ontario Soya-Bean Growers' Marketing Board held a symposium in Toronto titled "Ontario soybeans–A journey into the next century." Sheldon Hauck, vice-president of the Soy Protein Council in the USA and one of the speakers estimated that soy protein is an ingredient in over 2,500 readily available grocery store items. Contains a nice history of the soybean in Canada. Ontario now exports soybeans to 20 countries, "including major shipments to Japan, which buys only top quality soybeans and turns them into soyamilk, soyaflour, tofu, miso–a soyapaste for soup–and natto–a fermented soybean used as an appetizer." Speaker after speaker confirmed a bright future for soybean exports. Moreover, all supermarkets in Windsor now carry tofu, a soya curd. Soy oil is found in margarine and cooking oils. Soy protein appears in soya sauce, simulated bacon bits, and infant formulas. The H.J. Heinz Company in Leamington has been working with the marketing board to develop a line of processed soybean products for the retail market.

Ontario's three soybean crushing plants are experiencing hard times, in part due to competition from canola oil (which enjoys subsidized freight rates); they are operating at 62% of capacity and could be forced to shut down. Photos show: A pair of cupped hands holding soybeans. Peter Epp, chairman of the Ontario Soybean Growers Marketing Board.

Note: This is the earliest English-language document seen (March 2009) that uses the term "soyapaste" to refer to miso. Address: Star agriculture reporter.

1512. Beversdorf, Wally D. 1984. Soybean breeding developments and new varieties [in Canada]. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 36-48.
• ***Summary:*** A similar soybean symposium held in Sept. 1973 at Ridgetown Agricultural College of Agricultural Technology (Ridgetown, Ontario) played an important role in the development of soybean breeding in Canada. During the past 10 years, soybean production in Canada has more than doubled, thanks in large part to improvement in varieties, but also to improved management practices, and increasing demand for soybean products. Since 1973 early-maturing varieties have greatly expanded the area adaptable to growing soybeans. One of the major successes in soybean breeding during the past decade has involved the improved tolerance of soybeans to phytophthora root rots.

Traditionally 5 counties have produced most of the soybeans in Ontario and in Canada. Since 1973 soybean production outside this 5-county area has grown by 180%. Canadian varieties are often defined by the number of heat units (HU's) they require to mature properly. Certain "soybean Heat Unit Areas" are also defined; the best known are the 2600, 2800, 3100, and 3400 Heat Unit Areas. The southern tip of Ontario gets about 3100 to 3500 heat units. The 2600 soybean Heat Unit Area is generally the coldest and farthest north, and soybean yields from this area are generally lower than from warmer areas, in part because the number of days to maturity is less. In 1974 only 3 soybean varieties were recommend by OMAF (Ontario Ministry of Agriculture and Food, Publication 296) for the 2600 Heat Unit Area: Altona, Vansoy, and Hardome. But in 1984 six varieties were recommend for this Heat Unit Area: Maple Presto, Maple Amber, McCall, Maple Arrow, Bicentennial, and Evans.

All soybean varieties recommended by OMAF were developed by public institutions. The first privately developed variety, XK505 (from Maple Leaf Mills, Ltd.) appeared as a recommended variety in 1975. In 1984, 24 of the 35 varieties recommended by OMAF were developed in the private sector, by six companies breeding or evaluating soybean varieties in Ontario.

Future prospects for cultivar development: Progress in developing sources of low linolenic acid soybean oil suggests that within 10 years soybean varieties will be able to produce oil that no longer requires hydrogenation and winterization for salad oils. "This should result in reduced refining costs and the elimination of *trans* isomers of fatty acids, which have been implicated in elevated blood serum cholesterol." Address: Crop Science Dep., Univ. of Guelph, Guelph, ONT, Canada.

1513. Churcher, Colin J. 1984. Canadian transportation policy and its effect on the Ontario oilseed industry. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 142-53.
• ***Summary:*** Discusses the Crow Rate, the Minimum Compensatory Rates (MCRs established in 1976) on canola products, and the Western Grain Transportation Act, which came into effect on 1 Jan. 1984. "Soybean products are competing in Eastern Canada with canola products that move under a subsidized rail freight rate in Western Canada." Address: Director of Grain Transportation and Handling, Transport Canada, Ottawa, Ontario.

1514. Davis, C. Murray. 1984. The state of the soybean crushing industry [in Canada]. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 103-12. Held March 18-20.

• ***Summary:*** In Canada, "the largest single soybean crusher is Victory Soya Mills, located in Toronto, rated capacity 1,350 tpd (tons per day) or 480,000 tpy (tons per year). Next is Maple Leaf/Monarch at Windsor, rated at 1,300 tpd or 462,000 tpy. Finally, Canadian Vegetable Oil Products in Hamilton, rated at 1,200 tpd or 1,367,000 tons/year."

"The soybean crushing industry created with private capital, until recently, progressive and profitable all without one dollar of government involvement, has been ignored, abused and generally kicked from pillar to post for the last 5 years." This industry has come under tremendous pressure from and been seriously damaged by market domination of canola oil financed through massive federal and provincial government subsidies. "Fifteen years ago, rapeseed oil was unknown–today, Canola controls almost 55% of the refined / deodorised vegetable oil in Canada."

The most blatant subsidy is the freight rate structure that allows western Canadian oil access to eastern Canadian consumption. The Crow Bill (which allows canola oil reduced and subsidised freight rates to Thunder Bay, in western Ontario) and the Minister of Transport threaten to shut down Ontario's soybean crushing industry. The author urges abolition of all subsidies. "Let the marketplace decide. We currently have a heavily subsidized Canola industry losing enormous amounts of money at the expense of a self-supporting, and up until recently, profitable soybean industry. This is insanity. Compounding this are overpriced Canadian soybeans relative to soybean costs for competitive U.S. crushers."

The words "soyoil" (p. 3) and "soymeal" (p. 6) are mentioned.

Note: The author began his career at Victory Soya Mills in 1962. Address: Manager of Commodity Operations, Victory Soya Mills, Toronto, ONT, Canada.

1515. Epp, Peter H. 1984. The Ontario Soya-Bean Growers' Marketing Board's view of the next century. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 302-311.
• ***Summary:*** Discusses: Soybean pricing and the open tariff-free border with the USA. The Oleomargarine Act. Minimum Compensatory Rates (MCR's) and why they have put the Ontario soybean crushing industry in jeopardy (The program, established by the Canadian Transport Commission, originally encouraged the movement of raw rapeseed from Western to Eastern Canada. The government has poured $3 million annually into the program, which ends up subsidizing rapeseed oil in Ontario), the present status and potential of soybean crushing in Ontario (in 1982-83 three Ontario crushers crushed 1 million tonnes of soybeans). Market development.

Tables and graphs show the following, related to Canadian edible oil production, from 1973-1983: Margarine oil, shortening oil, cooking and salad oil, soymeal and rapemeal, soyoil and rapeoil. Note that for cooking and salad oil, rapeoil has always and increasingly exceeded soy oil production during this period. Total rapeoil production passed soyoil production in about 1975 and is now more than double that of soyoil. Soymeal production has always exceeded rapemeal production.

Note: This is the earliest English-language document seen (Oct. 2007) that contains the word "rapeoil." Address: Chairman, OSGMB, Leamington, ONT, Canada.

1516. Hauck, Sheldon J. 1984. Soy proteins: The United States experience. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 264-79.
• ***Summary:*** The Food Protein Council was organized in 1971; in Jan. 1982 the name was changed to Soy Protein Council. Most of the organization's early activity was devoted to working with U.S. government agencies to evolve fair laws and regulations governing nutrition labeling and composition of soy protein products, and the use of soy protein in government feeding programs... Much of that task is behind us and we feel the need to extend our activities into the realm of public or consumer information...

"We estimate that soy protein is an ingredient in over 2500 readily available grocery store items... Soybeans are a raw material that account for over 90% of the vegetable protein on the market today. Over 1 billion pounds of soy protein is manufactured each year in the United States.

Soy protein products are used primarily as a functional ingredient in foods. The addition of soy protein keeps cookies form breaking, keeps bread fresh longer and makes it more nutritious, makes sausage and luncheon meats more firm and juicy, makes soup more thick and creamy, reduces the amount of fat absorbed by doughnuts when they are frying, reduces shrinkage in meat patties, makes waffles and pancakes brown and crispy, and when added to pizza topping, saves money, reduces fat and cholesterol, and tastes delicious. The Council is not promoting soy protein in competition with beef. Because adding soy protein to a meat product, "we're using information that shows how using soy protein as an extender can actually lead to more, not less meat consumption... The U.S. Army is trimming nearly $7 (over $10 more up to date) million from its annual food budget by using soy protein in its kitchens around the world." Address: Executive Vice-President, Soy Protein Council, Washington, DC; Founder & President, Hauck & Associates, Washington, DC.

1517. Hawkins, Kerry L. 1984. World oilseed outlook and implications for the Canadian market. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 205-223.

• ***Summary:*** The world grain trade grew rapidly in the 1970's. The decade was a seller's market for grain exporters. Between 1972 and 1980 total world trade in wheat, coarse grains, and oilseeds increased roughly 65%, and oilseeds and their related products more than doubled. 80% of the increase in imports in the 1970's went to non-traditional markets, especially centrally-planned economies and newly-industrialized countries. At the beginning of the 1970's the centrally-planned economies [e.g. USSR] embarked on an ambitious program to improve diets [i.e. increase consumption of animal products]. But they tried to do too much too fast, and the food subsidies proved too costly to continue. Since 1980, only soybean exports have continued to grow.

The main oilseeds produced worldwide are soybeans, cotton seed, ground nuts / peanuts, sunflower seed, rapeseed, sesame seed, copra, palm kernels, linseed / flax, and castor seed.

Soybeans have the lowest percentage oil content of all oilseeds; copra and palm kernels have the highest. Canola contains 40% oil vs. 20% for soybeans. Palm oil has become the low-cost oil and increased its share in price-sensitive markets. Brazil has passed the USA as the leading exporter of soybean oil. Population growth rate is decreasing, and should be 1.75% by the end of the 1980's. Address: President, Cargill Ltd., Winnipeg, Canada.

1518. Hume, David J. 1984. Canola breeding developments and new varieties. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 49-54.
• ***Summary:*** Canola refers to varieties of rapeseed (either *Brassica napus* or *B. campestris)* which contain less than 5% erucic acid in their oil and less than 30 micromoles of glucosinolates per gram of oil-free meal. So, briefly, canola is high quality rapeseed. The development of canolas was largely done in Canada, at the Agriculture Canada Station at Saskatoon and at the University of Manitoba, during the 1960s and early 1970s. These developments have allowed overseas markets to expand and canola is now Canada's second largest crop, after wheat. The main types of canola are spring canola and winter canola. Winter rapeseed is the dominant oilseed crop grown in Europe. Address: Crop Science Dep., Univ. of Guelph, Guelph, ONT, Canada.

1519. Huneault, Triena. 1984. A consumer's perspective on soybeans and agriculture [in Canada]. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 287-95.
• ***Summary:*** The average person that she talked to had a "vague notion that soybeans were nutritious but, except for health enthusiasts, generally had no idea how to incorporate soybeans into their diet. This is true not only of typical consumers but also of farmer's wives, even though soybeans were a major source of income for their families. Since realizing this in 1977, the Ontario Soya-Bean Growers' Marketing Board hired a full-time home economist to promote soybeans and distributed at least 50,000 copies of a soybean recipe book. A joint project was entered into with the H.J. Heinz Company to develop new soybean products in 1981 and, in 1982, Faye Clack Inc. conducted an independent survey of consumer reaction to soybean products.

During a recent visit to supermarkets and a health food store in Windsor, Ontario, the author found "that all of the supermarkets now carry tofu due to the increased number of Asian immigrants who had been asking for it, and also the relatively new Canadian interest in Oriental cooking." Address: Consumers' Assoc. of Canada, Windsor, Ontario.

1520. Le Roux, Edward J. 1984. Future research in oilseeds [in Canada]. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 55-64.
• ***Summary:*** Canadians call canola the "Cinderella Crop." It was developed by research finds. The author hopes that research will make Canada self-sufficient in soybeans and soybean products by 1990. During the last decade, the area planted to soybeans has doubled–in part because of improved varieties such as Harcor from the Harrow Research Station in 1975, and Maple Arrow, Maple Amber, and Nattawa from the Ottawa Research Station. The breeding trend is toward more specialized varieties. There is increasing research emphasis on integrated management in order to reduce farmer's dependency on chemicals wherever possible and to ensure a better environment. "We want chemicals to be seen as one of several ways to control pests, not the only way. That is our future thrust. The aim is to ensure the farmer has the safest possible working environment. The aim is to reduce his input costs. The aim is to give him pest control options. The aim is to maintain consumer confidence in the safety and quality of all our food products, soybeans included. The aim is to protect the environment at large, the land, the water, the air, the beneficial insect populations...

"In a very significant move, we have begun construction of a $36 million facility at Saint-Hyacinthe near Montreal, Quebec, devoted exclusively to food processing research. It will be unique in Agriculture Canada. The new centre will be open in 1986, the 100th birthday of Agriculture Canada's agri-food research establishment." Address: Asst. Deputy Minister of Research, Agriculture Canada, Ottawa, ONT.

1521. Leeson, S. 1984. Comparative nutritional value of soybean meal and canola meal in feeding. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario

Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 113-19.
Address: Assoc. Prof. of Poultry & Swine Nutrition, Univ. of Guelph, Guelph, ONT, Canada.

1522. Martin, Larry. 1984. Soybean marketing strategies. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 168-80. [3 ref]
• ***Summary:*** "Soybean growers in Ontario have available a variety of methods of pricing their product. They can (1) forward contract before harvest, (2) sell in the spot market at harvest, (3) speculate in cash beans after harvest by storing and selling later, (4) price using a basis contract before or after harvest, (5) hedge in the futures market before or at harvest or (6) sell cash beans and speculate in a long future position." Address: Prof., Agricultural Economics, Univ. of Guelph, Guelph, ONT, Canada.

1523. Micklea, G. 1984. Soy oil uses in domestic [Canadian] products. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 132-41.
Address: Chariman, Technical Committee, Inst. of Edible Oil Foods; Vice President, Corporate Technical Services, Nabisco Ltd.

1524. Mogi, Ken. 1984. The history of shoyu (soy sauce) brewing in the United States. The story of the Oriental Show-You Company. San Francisco, California: Kikkoman. 3 p. March. Unpublished manuscript. Combined with a subsequent interview of Ken Mogi by W. Shurtleff on 20 April 1984.
• ***Summary:*** "Early in this century, Mr. Shinzaburo Mogi, one of the Mogi family's ancestors, tried to make shoyu in America. Mr. Mogi was born in 1872 and later came to America in about 1892. He studied at college in Maryland but had an eye problem so he gave up studying and returned to Japan. In 1904, the year his daughter Katsuko was born, he was in Toronto selling Japanese bicycles, involved in a trading business unconnected to Kikkoman. According to the memory of Mr. Tsuneo Tanba, who worked with Mr. Mogi very closely (and later told his story to Morio Ichiyama, Kikkoman historian), Mr. Mogi managed a shoyu plant in Denver, Colorado, in 1907; it was not successful. Later, he had some contact with a shoyu project in Toronto, Ontario, Canada. Though I traveled to Denver, I could not get any information on this." / Note: On 7 Feb. 2005 Ken Mogi wrote William Shurtleff at Soyfoods Center (in response to some questions about the existence of the Denver soy sauce plant): "I talked with Komiya. Mr. Shinzaburo Mogi had the New Testament reading meeting with 5-6 people during lunch break when Mr. S. Mogi was living in Noda [Japan] during World War II. Mr. Komiya told me that he remembered that Mr. S. Mogi mentioned the Denver story." However Ken Mogi is does not know (1) if S. Mogi ever wrote anything about a soy sauce plant in Denver, (2) when and where S. Mogi told this story to Mr. Tanba, and (3) when and where Mr. Tanba told Mr. Ichiyama about S. Mogi's supposed soy sauce plant in Denver. Ken Mogi encloses a photo of Mr. Shinzaburo Mogi at about age 30.

Mr. Mogi's daughter, Mrs. Katsuko Yoshida, who is living in Tokyo, does not remember anything about Denver or her father starting a soy sauce plant in Denver. However she did tell me the story about "Oriental Shoyu" in Indiana.

Katsuko lived in Chicago with her parents in the 1920's (maybe 1920-1926). Mr. Mogi worked for Yamato Shokai, selling Japanese silks. They found the product "Oriental Shoyu" in the market and were very much impressed. They visited the plant in Indiana and later Mr. Mogi became a stockholder in that company.

Mr. Esta Keirn started employment with the Oriental Show-You Co. on 28 Oct. 1932 as a [mung] bean sprout washer. He continued until 1 Nov. 1961, when the company was sold to Beatrice Foods Inc. and turned over to La Choy Food Products. Mr. Keirn worked for La Choy for 8 years. He never met Mr. Mogi but he heard several things about him from Mr. Ohki.

Shinzo Ohki, the founder of the company and one of 8 children, was born in 1884 in Kamakura, Japan. He immigrated to the USA in 1901, landing in Seattle, Washington. Eventually he ended up in Columbia City, Indiana, where he graduated from high school. He then graduated from college in New York City. Upon graduation he started in business as a tea merchant in Detroit. To expand his line, he imported soy sauce in small wooden kegs from Japan. This he bottled and sold along with his tea. He could not expand his tea business but the soy sauce business kept growing.

Wishing to expand by adding other products to his line, he returned to Columbia City, took in a partner to gain capital, and set up in a vacant canning plant (Vance Canning Co.). This is when he incorporated and took the name of Oriental Show-You Company, Inc. Then, in 1917, Mr. Ohki went to Japan to obtain the formula (and also a wife) and some instruction in making soy sauce so he could manufacture his own. Upon coming back to Columbia City, Indiana, he enlisted the help of someone from the USDA to work out the koji culture. Fermentation was set up in large wooden beer vats. Equal parts soybeans, wheat, and salt were aged for 24 months, then pressed and bottled. According to Mr. Keirn, the company produced as much as 30,000 gallons of shoyu in one year. The plant in Columbia City was vacant for some time and now most of it has been torn down, but the adjacent adobe and brick buildings are still standing.

Note 1. Much of this story was published in the Japanese-language newspaper *Rocky Mountain Jiho* (Denver, Colorado), 25 Jan. 1984. p. 4. Kenzaburo's great grandfather was the first president of Noda Shoyu K.K. (today's Kikkoman). Shinzaburo Mogi was the latter's brother.

Note 2. On 7 Feb. 2005 Kenzaburo Mogi IV of Kikkoman, Japan, sent William Shurtleff a hand-drawn map showing the location of the four buildings that were part of the Oriental Show-You Company in Columbia City, Indiana. They were located between the railroad track and Factory Avenue, near Line street. These photos show: (1) The office building. (2) The printing and boiler shop building. (3) The remains of the soy sauce plant, with hand-drawn arrows pointing the areas on the cement floor used for the moromi tank, koji making, and pressing. (4) Close-up of the cement base of the moromi tank. (5) Close-up of the space on the cement floor, between the moromi tank and outside wall, where the heater was. (6) Close-up of the area used for pressing *(assaku)* the soy sauce from the moromi. (7) Mr. Esta Keirn standing in a grassy field in front of the chow mein building, which once shared a wall with the soy sauce plant. (8) Granite tombstone of the founder, Shinzo Ohki (1883-1967) and his wife, Taka (1889-1963). (9) Mr. Esta Keirn. Address: Kikkoman Marketing and Planning Inc., P.O. Box 784, San Francisco, California 94101.

1525. Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Ontario soybeans...a journey into the next century (Proceedings). Chatham, Ontario, Canada: OSGMB. 319 p. Held 18-20 March 1984 at Toronto, Ontario, Canada. No index. 29 cm. [3 ref. Eng]
• ***Summary:*** Contains 30 papers by various authors; most are cited separately. Address: Chatham, ONT, Canada. Phone: (519) 352-7730.

1526. Ontario Soya-Bean Growers' Marketing Board. 1984. Ontario Soya-Bean Growers' Marketing Board. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 3. 28 cm.
• ***Summary:*** "The 17,000 Ontario soybean producers, who farm nearly 1,000,000 acres of soybeans in the four regions of Southern, Western, Central and Eastern Ontario, are separated into eight soybean districts and two soybean areas...

"The board's activities are funded by a two and one-half cent per bushel check-off [checkoff] on soybean sales by producers. One-half cent of this check-off is used for research, domestic, and overseas promotion. The balance of the check-off is used to provide the soybean producer with the latest and most up-to-date information on soybean prices and markets, as well as other services." Address: Chatham, ONT, Canada.

1527. Pennell, M.D. 1984. Canned soybeans: A new consumer product. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 280-86.
• ***Summary:*** After extensive testing and development the product concept was abandoned. Address: General Manager, R&D, H.J. Heinz Co. (Canada), Leamington, Ontario.

1528. Rennie, J. Clare. 1984. A look at the progress of soybeans [in Canada] in the last decade. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 22-35.
• ***Summary:*** "In 1893, Professor C.A. Zavitz, crop specialist at the Ontario Agricultural College, grew probably the first field of soybeans, as a replacement for cow peas which had failed, and set in motion a 30-year variety testing program for Ontario farmers. Canada's first new variety, OAC 211, was introduced in 1923; this was followed in the 1930's by three early maturing ones, A.K., Mandarin, and Capital, introduced by Dr. Dimmock of the Harrow Dominion Experimental Station. A colleague, Dr. Cass Owen, was the originator of Harosoy, introduced in 1951. It quickly became a leading Ontario variety as well as the main one grown in the American soybean belt for many years...

"However, soybeans were not a major crop in Ontario, or for that matter in the USA, until the Second World War. What was grown was largely for green manure and forage. The statistics on soybeans in Ontario were not even given separately until 1942. The predominance of linseed meal and cottonseed meal and oil was too strong to be easily overcome by another crop. The wartime demand for an easily available source of vegetable oil and protein gave soybean production its first big boost...

"In Ontario, the production figures for the last decade show... sharp increases. Aside from demand which made it economically attractive for farmers to grow soybeans, this increase has been made possible by a breeding and management research program to extend Ontario's soybean area and to maintain yields at competitive levels. Until the late 1970's, virtually all of the province's soybeans were grown in Essex, Kent, Lambton, Middlesex, and Elgin Counties. With new early maturing, high-yielding varieties adapted to the growing conditions in Central, Western and Eastern Ontario, production in these areas is increasing rapidly. The number of hectares planted has risen from 4,010 ha in 1972 to 61,500 ha in 1982...

"The Ontario breeding program has emphasized not only early maturity and high yields, but also resistance to disease and to pod shattering, and good nodulation capabilities. Under the direction, since 1976, of Dr. Wally Beversdorf... the program is rapidly coming of age. Maple

Arrow, a high-yielding variety adapted to 2,600 heat unit areas, was developed at the Central Experimental Farm, Ottawa. Its introduction in 1976 was the shot in the arm needed to expand the soybean-growing area, and the OMAF/Guelph program is aimed at continuing this expansion...

"In the last decade, we have largely overcome nodulation problems, with the introduction of granular inoculants in the mid-1970's. These inoculants, which have proven particularly effective in first-time soybean fields...

"The introduction of a flexible floating cutterbar has further cut harvest losses, which had been as high as 30 percent with rigid cutterbars and conventional combines...

"With the establishment of the [Maple Leaf Monarch] crushing facility at Windsor [in July 1979], the province's daily crushing capacity has increased by 300 tonnes per day, and the three crushing plants at Toronto, Hamilton, and Windsor are crushing about 35 million bushels of soybeans each year."

Table 4 shows that in 1972 only 9,909 acres (2.5% of the total Ontario province planting) took place outside the traditional five-county region. By 1982 this had increased to 151,964 acres (17% of the total planting)–largely due to the development of new short-season varieties in the "Maple" series, which matured in 100-108 days at 2200 to 2550 heat units. Address: Asst. Deputy Minister of Technology and Field Services, Ontario Ministry of Agriculture and Food (OMAF).

1529. Sim, William J. 1984. Farmers' experiences and experiments with growing soybeans [in Ontario, Canada]. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 73-78.

• ***Summary:*** The author grows 500 acres of soybeans in Ontario. Soybean production in Canada is subsidized by the federal government. "Until 1973, the only export of any consequence was to the United Kingdom, mainly because of the preferential trade benefit. This was phased out in the early 1970s and export sales greatly diminished. In 1973, after years of frustration, the Soybean Board subsidized a shipment of about 30,000 bushels to Japan for the human consumption market, mainly miso and tofu. Since then, the quality of Ontario soybeans has become so renown in the Pacific Rim countries that 1982 exports to this area accounted for 2.2 million bushels. The potential of this market is almost unlimited...

"In summary, I would like to say that I am excited about our soy production. It is like a new lease on life to grow something other than corn. We'll probably never get rich at it, but we'll enjoy trying." Address: Farmer, Moore township, Lambton County, ONT, Canada.

1530. Subden, Ron. 1984. Star Wars soybeans. . . Genetic engineering of soybeans. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 296-301. [1 ref]

• ***Summary:*** Contents: Introduction. Classic breeding–The quest for new allele combinations. Mutagenesis–Inducing new alleles. Cell fusions–Hybrids of non-related species. Genetic engineering–Plasmid mediated recombination. Star wars.

By the year 2000 strains of soybeans "will not only be bred but actually constructed by 'gene machines' (computers with microprocessors that actually make whole sets of genes) that will literally assemble a genotype to the grower's specifications. Soybeans all have approximately the same number of genes and the same arrangement of genes within the chromosomes. Different forms of the same gene are called alleles. Sometimes a desired gene for soybean improvement exists in an entirely different plant organism such as a bacterium or yeast. Genetic engineering techniques are now available to cut out the desired gene, and stitch it into a plasmid. Plasmids are small, circular sets of genes that can replicate like a parasite in a host cell. Under certain circumstances, some plasmids can insert themselves into the chromosomes of plant cells. If they carry a desired gene for crop improvement, plasmids then become vectors. Plasmid borne genes can be inserted into the plant chromosomes and eventually into the seeds and persist through succeeding generations. In such a way, new alleles or new genes can be introduced into the plant germline...

"A soybean gene is a chain molecule composed of a very precise sequence of nucleotides which contains a genetic code. The sequence of a gene can readily be determined by relatively simple procedures. The nucleotide sequence of a virus containing 49000 nucleotides has recently been published. The first gene was constructed in the '70s by G. Khorana at the University of Wisconsin. He used literally dozens of technicians and the project took years. Today, one can purchase for $40,000 (Canadian) a 'gene machine' that quickly will make sequences of 10-15 nucleotides... The gene machine construction of a complete gene, say 1500 nucleotides long, is at present quite technically difficult if not impossible. The problem is, however, only technical and will be solved... A complete set of soybean genes is probably around 5-10 thousand genes." Address: Prof. of Genetics, Univ. of Guelph, Guelph, ONT, Canada.

1531. Suzuki, Steven. 1984. Pacific Rim potential for edible soybeans. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 224-41.

• ***Summary:*** Soybeans were first exported from Canada about 12 years ago when a Japanese house approached the Ontario Soybean Grower's Marketing Board for a trial shipment to Japan. The trial worked out very well and in a short time Ontario's soybean exports became a multi-million dollar business. Ontario soybeans are very clean, the quality is comparable to Japanese and Chinese soybeans, and the supply is consistent. However the price is high in relation to Chinese and U.S. soybeans. As a result, Ontario soybeans are sold in high-priced markets, as for making premium quality miso or soyamilk. The supply of Chinese soybeans is irregular. Address: Manager, Grain Trading Section, Okura & Co. America Ltd., New York, NY.

1532. Wernham, Les. 1984. Exports–Problems and opportunities [for Canadian soybeans]. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 246-53.
• ***Summary:*** Soybean exports from Ontario have expanded dramatically during the past 10 years; in 1982 they reached a high of 132,000 tonnes worth $44 million. The East Asian market including Japan, Korea, Hong Kong, and Malaysia accounted for 81% of Ontario's export soybean sales in 1983, with an additional 8% going to Europe. The main buyers in 1982 were: Japan 47,414 tonnes, Netherlands 19,545 tonnes, Singapore 18,039 tonnes, Indonesia 16,652 tonnes, Hong Kong 15,234 tonnes.

Most of these soybeans are sold for human consumption. "For example, one of Sweden's foremost pharmaceutical manufacturers has in the past years been that country's largest single importer of Canadian soybeans. Taking about 3,000 tons annually, this company produced a patented intravenous nourishment called Intralipid." Tiny soybeans (5 mm diameter or less) are used to make bean sprouts and natto. For soybean exports, freight constitutes an average 21% of the net delivered cost to the buyer in his country. They are shipped in bagged or bulk (20 or 40 foot) containers. The main focus of breeding should be to develop varieties that do not carry a common bitterness or beany flavor. Address: Grain Manager, King Grain, Chatham, ONT, Canada.

1533. Whelan, Eugene. 1984. [The soybean industry in Canada and its future]. In: Ontario Soya-Bean Growers' Marketing Board. ed. 1984. Ontario Soybean Symposium. Chatham, Ontario, Canada: OSGMB. 319 p. See p. 65-72.
• ***Summary:*** "Soybeans are a crop with a bright future. I am proud that my department has supported the development of this crop which, last year, brought Canadian farmers $250 million in farm cash receipts." Discusses the Advance Payments for Crops Program, and the Agricultural Stabilization Act. "Support programs aside the main reason for the expansion of Ontario soybean acreage is the development of earlier-maturing varieties. Or, in two words, successful research. As a matter of fact, our earliest Ontario variety today matures in about 100 days, as opposed to over 115 days for the earliest variety 25 years ago.

"I'm sure you would agree with me that the $3 million Agriculture Canada allocated to oilseeds research in 1983-84 was money well spent... It has been estimated that Eastern Canada could be self-sufficient in soybean production by 1990...

"Although 51 per cent of the vegetable oil used in Canada is canola, most of the remainder is soybean oil... We're still importing 370,000 tonnes of American soybeans annually, plus a lot of meal... When it comes to competing in export markets, you now have additional help on your side. I'm talking, of course, about the help of Canagrex... Speaking of canola, I know there's one other matter that concerns your industry. That's the matter of minimum compensatory rates on canola products moving east of Thunder Bay. As you know, the government last year accepted the principle that the existing MCRs should be replaced by freely negotiated, commercial rates." Address: Minister of Agriculture, Agriculture Canada, Ottawa, ONT, Canada.

1534. Tan, Tjeng Giok. 1984. Early work with tempeh in Canada (Interview). *SoyaScan Notes.* April 22. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Mr. Tan never made tempeh commercially and he does not have a company–though he was involved with tempeh. An acquaintance of his was studying at a university in the United States and he wanted a sample to test for vitamins. Mr. Tan used to make tempeh, but only for himself and friends, starting in about 1968. He does not know of any early Canadian tempeh companies. Address: 324 Apache Trail, Toronto, Ontario, Canada. Phone: 416-491-2328.

1535. Lewis, Joseph, 1984. Soymilk and soyfoods in Canada (Interview). *SoyaScan Notes.* April 27. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Use of the word "soymilk" has been legalized in Canada, but users are not allowed to state that it is free of cholesterol or lactose. Joe will send details in a letter.

The key to getting permission from the Canadian government was to show that the word "soymilk" existed before 1922. Joe will send soymilk patents issued before 1922.

Dr. John Demann is one of the world's foremost authorities on soyfoods. He works closely with Victory Foods and was the keynote speaker at a recent soy symposium in London, Ontario.

In March 1984 there was a super soybean symposium in Canada; Joe will photocopy and send the proceedings.

The single best source of historical material on soy in Canada is the National Archives in Ottawa. It is all on computer going back to the 1920s. He thinks one could find 50 pounds of historical material.

Tofu Products International in Markham, Canada, makes very dirty [unsanitary] tofu; many cakes are also underweight. Its a bad company, is ruining the tofu industry in Canada, and seems to exist only for quick profits. Address: 102 Hymus Rd., Scarborough, Ontario, Canada M1L 2C9. Phone: 416-752-0161.

1536. Rubenstein (Howard J.) Associates, Inc. 1984. Tofutti in bulk-pack available nationwide (News release). New York. 2 p. April 27.
• ***Summary:*** "Tofutti, the nondairy soy-based frozen dessert, is now available hard-frozen in 2½ gallon bulk pack containers to restaurants and food service establishments nationwide... The first five bulk pack flavors are Vanilla Almond Bark, Chocolate Supreme, Maple Walnut and Wildberry Supreme.

"Tofutti, which is made with tofu, is similar to ice cream but contains no cholesterol, no lactose and no butterfat. Its ingredients are water, high fructose, corn sweeteners [sic], honey, corn oil, tofu, isolated soy protein, assorted natural flavors and vegetable gums.

"Tofutti has been available in soft-serve form since 1981 through distributors in New York, Hawaii, California, Florida, Washington, D.C., Oregon, Washington, Idaho, Arizona, New Mexico, Texas, Nevada, Utah and Canada.

"Sold in a liquid mix, retailers then dispense it through a soft-serve frozen dessert machine in any one of six soft-serve flavors: Vanilla, Chocolate, Strawberry, Maple Walnut, Banana Pecan and Peanut Butter."

Then discusses the effects of cholesterol on heart disease, and lactose intolerance–which afflicts approximately 40 million Americans. Address: New York.

1537. Cramer, M.M.; Beversdorf, W.D. 1984. Effect of genotype X environment interactions on selection for low linolenic acid soybeans. *Crop Science* 24(2):327-30. March/April. [15 ref]
Address: Dep. of Crop Science, Univ. of Guelph, Guelph, ONT, Canada N1G 2W1.

1538. Muendel, Hans-Henning. 1984. Soybean cultivars for the southern prairies: Progress and prospects. *Agriculture Canada Research Station, Lethbridge, Research Highlights* For the year 1983. p. 72-73. April.
• ***Summary:*** "The major emphasis in the soybean breeding program initiated in 1978 is the development of cultivars suitable for the southern prairies and the marketplace. With early-generation screening for protein and yield and the use of winter nurseries, this goal is deemed attainable in the near future...

"The soybean breeding program at Lethbridge was initiated in 1978 and since 1979 has been in part supported by the Province of Alberta (Farming for the Future program)."

A photo shows Hans Muendel. Address: Research Station, Lethbridge, Alberta, T1J 4B1, Canada. Phone: 403-327-4561.

1539. Soldati, A. 1984. Report 1982-83 of the "Working Group for the Promotion of Soybeans in Northern Europe and Canada." *Eurosoya* No. 2. p. 55. April.
• ***Summary:*** This group was formed in 1981 at the suggestion of the Soybean Network FAO (M. Arnoux) and of the EUCARPIA Section Oil and Protein Crops (G. Robbelen). Address: Swiss Federal Inst. of Technology (ETH), Crop Science Dep., CH-8307 Eschikon-Lindau, Switzerland.

1540. *Presse (La) (Montreal, QUE, Canada).*1984. Le soya, la protéine de l'avenir pour les gens d'ici [The soybean, protein source of the future for people here?]. May 2. [Fre]
• ***Summary:*** Canada is now a major exporter of soybeans to East Asia. Some return in the form of soymilk and tofu.

1541. *Wall Street Journal.*1984. P&G agrees to sell assets of Toronto unit. May 14. p. 12, col. 3.
• ***Summary:*** This agreed sale of the company's Victory Soya Mills Ltd. unit in Toronto to Central Soya Co. is part of Procter & Gamble's plan to exit from commodity industries. "Procter & Gamble's cotton seed and soybean crushing operations once were a major part of the company's business. Those operations led to the consumer products company's involvement in food processing and the development of its Crisco brand cooking oils. During the past three or four years, however, the company has been selling its crushing subsidiaries. 'It's a very small part of our business now,' a spokeswoman said. 'It makes sense to sell the units to companies that specialize in those operations.'"

1542. Lewis, Joseph. 1984. Re: The word "soymilk" has just been legalized in Canada after a long process. Letter to William Shurtleff at Soyfoods Center, May 27. 2 p. [1 ref]
• ***Summary:*** Victor Foods has finally received written permission to use the word "soymilk" from Consumer & Corporate Affairs, Canada, the body that reviews all labels submitted to them for correctness and makes most of Canada's policies regarding labeling.

"It was a long fight and we received no support from any of the other soyfoods processors here in Canada. This seems to be the rule... let Victor do it at his expense and we will be able to use the new regulations at no expense to us.

"We are most interested in the new [soyfoods] association that is being presently formed [by Frances

Boyte] and would like very much to be a part of it. How do we go about this?"

Note: This is the earliest document seen (Jan. 2010) that mentions a soyfoods association in Canada–although it was not established until 1985. Address: 102 Hymus Rd., Scarborough, Ontario, Canada M1L 2C9. Phone: 416-752-0161.

1543. Shurtleff, William; Aoyagi, Akiko. 1984. Amerika Gasshû-koku oyobi Kanada ni okeru miso no rekishi [History of miso in the USA, and Canada]. *Miso no Kagaku to Gijutsu (Miso Science and Technology)* 32(5):237-40. May. [221 ref. Jap]
• ***Summary:*** This is part 2 of a translation in 4 parts by Taeko Ebine of the chapter on the "History of Miso" from *The Book of Miso* by Shurtleff and Aoyagi. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

1544. **Product Name:** Falafels (Spicy Mideastern Patties).
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2847 Dundas St. West, Toronto, ONT, M6P 1Y6, Canada. Phone: 416-762-1257.
**Date of Introduction:** 1984. May.
**Ingredients:** Soy mash [okara], chick peas, millet, sesame seeds, tamari, soy oil, potato starch, spices, seasonings.
**Wt/Vol., Packaging, Price:** 350 gm box.
**How Stored:** Frozen.
**Nutrition:** Per 100 gm: Protein 7.6 gm, carbohydrates 18.4 gm, fat 15.1 gm, calories 240.
**New Product–Documentation:** Label. Received 1988, Aug. 8.5 by 4.5 by 2 inches. Printed on stiff paper box. Orange and black on yellow with color illustration of an oasis plus camels, tent, and palms. Text and recipes in English and French. "Ready for the oven. Heat and serve." On side panel: "Health is the most precious thing you have. Sustain it by eating good food." Recipe on back for Traditional Falafel Sandwich. Letter from Jon Cloud: Introduced in the spring of 1984. Later he said it started in 1983.

1545. Hansen, Barbara. 1984. Tofu. *Los Angeles Times.* June 7. Food section (Part VIII). p. 1, 9, 12, 14. Thursday.
• ***Summary:*** Don Bushman, American Soybean Assoc. director in Singapore, notes that the Asian soybean market is growing rapidly. "Indonesians consume about 1 million tons of soybeans annually, 60% to 65% of them in the form of tofu, and 35% to 40% as *tempe.* The fifth-largest nation in the world in terms of population, Indonesia imports 400,000 tons of soybeans a year, about 90% of them from the United States. Some 25,000 to 30,000 tons of soybeans are used annually for food in Malaysia, and 15,000 to 20,000 tons are imported to Singapore for food use, Bushman said. In Singapore and Malaysia, most of the tofu is made with Canadian beans, he added, explaining that Canada is able to deliver the beans at a lower cost. Thailand produces all of its food beans domestically and does not import additional supplies, Bushman said. However, the United States sends soy meal for animal feed to this and other Asian countries."

1546. Huff, Murray W.; Giovannetti, P.M.; Wolfe, B.M. 1984. Turnover of very low-density lipoprotein-apoprotein B is increased by substitution of soybean protein for meat and dairy in the diets of hypercholesterolemic men. *American J. of Clinical Nutrition* 39(6):888-97. June. [45 ref]
Address: Senior Research Fellow of The Ontario Heart Foundation, Dep. of Medicine, Univ. Hospital, 339 Windermere Road, London, Ontario, Canada N6A 5A5.

1547. Jones, G.E.; Anderson, G.W. 1984. Research success in field crops: The expansion of corn and soybean production in Ontario. *Highlights of Agricultural Research in Ontario* 7(2):1-4. June. [Eng; fre]
• ***Summary:*** "There is no doubt that the technology which dictated the rapid development of corn and soybean production was chemical weed control. Corn was the forerunner crop and the dominant discovery for it was atrazine, developed by Geigy of Switzerland in 1954. This chemical showed the way to broad spectrum weed control including the destruction of perennial weeds, notably quack grass. By 1958, this 'miracle of chemistry' had been joined by a sister chemical, simazine, recommended in Ontario."
Address: Dep. of Crop Science, Ontario Agricultural College, Univ. of Guelph, Guelph, Ontario, Cananda.

1548. **Product Name:** [L'Herberie Smoked Tofu Fume].
**Foreign Name:** L'Herberie Smoked Tofu Fume.
**Manufacturer's Name:** L'Herberie.
**Manufacturer's Address:** Rue de St. Viateur, Montreal, QUE, Canada.
**Date of Introduction:** 1984. June.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Yvon Tremblay and Richard Milon. 1987. Dec. 11.

1549. **Product Name:** [Tempeh Burgers (Marinated and Baked. No Oil)].
**Manufacturer's Name:** Noble Bean.
**Manufacturer's Address:** Toronto, ONT, Canada.
**Date of Introduction:** 1984. June.
**New Product–Documentation:** Letter from Allan Brown. 1985. Aug. 7. Ready to eat. 4 oz for $1.65. Letter (fax) from Allan Brown. 1998. Jan. 21. Tempeh burgers were first sold in June 1984.

1550. Shurtleff, William; Aoyagi, Akiko. 1984. Amerika Gasshû-koku oyobi Kanada ni okeru miso no rekishi (2) [History of miso in the USA and Canada (2)]. *Miso no Kagaku to Gijutsu (Miso Science and Technology)* 32(6):287-91. June. [221 ref. Jap]
• ***Summary:*** This is part 3 of a translation in 4 parts by Taeko Ebine of the chapter on the "History of Miso" from *The Book of Miso* by Shurtleff and Aoyagi. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

1551. **Product Name:** Firm Nigari Tofu, Soymilk, and Soysage.
**Manufacturer's Name:** Maritime Soycraft.
**Manufacturer's Address:** R.R. 4, Antigonish Harbor, NS, B2G 2L2, Canada. Phone: 902-863-2903.
**Date of Introduction:** 1984. July.
**New Product–Documentation:** Form filled out by Sian McLean (a woman), ca. 1984. They started on 1 July 1984 and now make firm nigari tofu, soymilk, and soysage. The business has no name yet. "Small word-of-mouth operation so far." They use 60 lb/week of soybeans.

Letter from Sam Weinreb. 1988. Jan. 14. He just talked with Hugh and Sian McLean. Talk with Sian McLean. 1988. Feb. 15. They started making tofu July 1984. His company is now named Maritime Soycraft, R.R. 2, Heatherton, NS, B0H 1R0, Canada. Phone: 902-386-2474. Says he started making soysage in 1986, but it is shown on his 1984 form. Call from Sian. 1991. Nov. 18. They make mostly tofu, plus some soymilk. They no longer make soysage. They make about 500 lb/week of tofu. There is a nice little steady market and people really like Maritime tofu. Her first name is Welsh.

Letter from Sian McLean. 1994. July 16. Maritime Soycraft is now located at Keppoch Mountain, R.R. #1, Antigonish, Nova Scotia B2G 2K8, Canada. Phone: 902-863-3978. This is a new tofu shop she built. She presently makes only fresh bulk tofu. She left her former marriage with Hugh and has a new partner who wants to do tofu production.

Talk with lady who works with Sian. 1995. May 15. Sian now has a vacuum packaging machine for her tofu, and she can get a shelf life of two weeks before the product turns yellow. This vacuum-packed tofu is not yet on the market.

Talk with Rick Turner of Maritime Soycraft. 1999. Dec. 2. They moved 1½ to 2 years ago to R.R. #4, Antigonish, NS B2G 2L2. Their phone number has not changed. They are now a partnership with 3 partners, Sian, Rick, and one other full-time person. They make about 1,000 lb/week of tofu, but have to expand to take on a new chain. So their business is growing and they are looking for new equipment.

1552. Shurtleff, William; Aoyagi, Akiko. 1984. History of tempeh: A fermented soyfood from Indonesia. Lafayette, California: Soyfoods Center. 81 p. July 17. No index. 28 cm. 2nd ed. 1985. 91 p. [375 ref]
• ***Summary:*** Contents: 1. Introduction. 2. Etymology. 3. World Overview. 4-8. History of Tempeh in Indonesia. 9-11. History of Tempeh in Europe and Australia. 12-15. History of Tempeh in the United States and Canada. 16-18. History of Tempeh in Japan. 19-23. History of Tempeh in Asia (China, Taiwan, Southeast Asia, India, Sri Lanka). 24. History of Tempeh in Latin America. 25. History of Tempeh in Africa. 27. International Interest. 28. U.S. and Third World Problems.

The world's largest tempeh manufacturers are as follows:

Company name, Country, Year Started, Avg. Weekly Production

1. Marusan-Ai, Japan, 1983, makes 15,148 lb/week = 6,885 kg/week
2. Tempe Production Inc., Netherlands, 1969, makes 13,200 lb/week = 6,000 kg/week
3. Quong Hop/Pacific Tempeh, USA/CA, 1980, makes 7,000 lb/week = 3,182 kg/week
4. White Wave, USA/CO, 1979, makes 5,850 lb/week = 2,659 kg/week
5. Soyfoods Unlimited, USA/CA, 1981, makes 5,800 lb/week = 2,636 kg/week
6. Torigoe Flour Milling, Japan, 1983, makes 5,770 lb/week = 2,623 kg/week
7. The Tempeh Works, USA/MA, 1979, makes 5,500 lb/week = 2,500 kg/week
8. Marukin Foods, Japan, 1983, makes 4,620 lb/week = 2,100 kg/week. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

1553. Shurtleff, William; Aoyagi, Akiko. 1984. Amerika Gasshû-koku oyobi Kanada ni okeru miso no rekishi (3) Oyobi sono hoka no shokoku ni okeru miso [History of miso in the USA and Canada (3) And miso in other countries]. *Miso no Kagaku to Gijutsu (Miso Science and Technology)* 32(7):308-12. July. [221 ref. Jap]
• ***Summary:*** This is part 4 of a translation in 4 parts by Taeko Ebine of the chapter on the "History of Miso" from *The Book of Miso* by Shurtleff and Aoyagi. The other countries mentioned above are Israel, India, Brazil, and Nigeria. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

1554. Mintz, David. 1984. Barron's Mailbag: Tofu Time responds [to column by Alan Abelson on Aug. 6]. *Barron's*. Aug. 13. p. 9, 32.
• ***Summary:*** Tofu Time began distributing hard-frozen pints of Tofutti in mid-July through their master distributor, Haagen-Dazs Co. The product is sold in over 15 markets,

through chains and independent grocery stores. Tofutti's soft-serve mix can be processed through any standard soft-serve dispensing machine, the same machines used to process soft-serve ice cream and frozen yogurt desserts. For this reason, during the past year the company has been able to expand sales of soft-serve Tofutti to over 20 states and Canada.

Preliminary figures indicate that sales of Tofutti products for the just completed fiscal fourth quarter exceeded $1.5 million and that the company had a profitable quarter and perhaps a profitable year.

Tofutti is lactose free. It has been estimated that 25% of the U.S. population has lactose intolerance. The figure is even higher in many foreign countries. Address: President, Tofu Time Inc., New York City [New York].

1555. Bertrand, Jean-Pierre. 1984. Protein-rich oilseeds: Soya–International situation and regulations. *Courier (The): Africa-Caribbean-Pacific–European Community* No. 86. p. 82-85. July/Aug.
• ***Summary:*** Contents: Introduction. Soya and the American policy dominate the situation in 1983/84. Brazil's soya boom runs out of steam. American reaction [to Brazil's rise]. Adaptation strategies in countries importing and/or producing substitute products (palm oil producers such as Malaysia, and rapeseed producers such as Canada). Eastern Europe and China. Address: Researcher, Laboratoire d'Economie et Sociologie Rurales, INRA (Institut National de la Recherche Agronomique), 6, Passage Tenaille, 75014, Paris, France.

1556. **Product Name:** Granola: Soya Cereal.
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2847 Dundas St. West, Toronto, ONT, M6P 1Y6, Canada. Phone: 416-762-1257.
**Date of Introduction:** 1984. August.
**Ingredients:** Dried soy mash [okara], peanuts, honey, soy milk, sunflower seeds, raisins, spices, natural flavour, sea salt.
**Wt/Vol., Packaging, Price:** 500 gm plastic bag.
**How Stored:** Shelf stable.
**New Product–Documentation:** Label sent by Jon Cloud. 1989, May 5. He says the product was introduced in the summer of 1984.

1557. Beversdorf, W.D. 1984. Development of new soybean varieties for soy foods [in Canada]. In: Ontario Ministry of Agriculture and Food, Market Development Branch. 1984. Workshop on Export Markets for Ontario Soybeans: Edited Proceedings. 45 p. See p. 18-20. Held 5 Sept. 1984 at Wheels Motor Inn, Chatham, ONT, Canada. 28 cm.
• ***Summary:*** "Historically, soybean breeding efforts in Canada have been directed toward improving yields, increasing the area of adaptation (to shorter season and cooler geographic areas) and improving pest tolerance. As soybean production has increased toward domestic self-sufficiency, the industry has placed more emphasis on development, production, and marketing of special quality beans for specific non-oil export markets...

"In Canada, yield of soybeans per unit land area has remained a primary consideration in soybean breeding (except for natto-type beans) because of licensing requirements for pedigreed seed production and marketing. Among high yielding breeding lines, large seed size, white or yellow hilum colour and high seed quality (resistance to discolouration and cracking) are common selection criteria associated with tofu and miso export potential."

Canadian soybean breeders are generally aware of the characteristics defined during the 1982 "Soybean Export Mission to South East Asia" for various soyfood uses. These desired soybean characteristics are shown in Table 1 for natto, miso, tofu, soymilk, and soy sprouts. Address: Assoc. Prof., Univ. of Guelph, Guelph, ONT, Canada.

1558. Chan, Fred. 1984. General uses of soybeans in Hong Kong and competition from Chinese soybeans. In: Ontario Ministry of Agriculture and Food, Market Development Branch. 1984. Workshop on Export Markets for Ontario Soybeans: Edited Proceedings. 45 p. See p. 15-17. Held 5 Sept. 1984 at Wheels Motor Inn, Chatham, ONT, Canada. 28 cm.
• ***Summary:*** Tofu: The two major types of tofu in Hong Kong are soft tofu (which is displayed in water to maintain its form) and mild tofu (which is firmer, is displayed on wooden planks, and is the most common type). Chinese soybeans are preferred to Canadian soybeans because after a maximum of 5 hours on display in the open market, water will start to weep from the tofu made from Canadian soybeans. In 1983, about 6,000 tonnes of imported soybeans were used to make tofu in Hong Kong; this was about 33% of the total soybeans imported.

Bean curd sheets and bean curd sticks [yuba] are very common snacks and dishes in Hong Kong. "Canadian soybeans have an advantage in this market because they produce whiter soymilk which in turn will produce whiter colour products. However, the bigger size of the Chinese soybean results in a higher yield... Manufacturers will normally mix 60% of Canadian soybeans with 40% of Chinese soybeans in order to achieve a higher output of whiter sheets... Total utilization was around 4,000 tonnes in 1983, with Canadian soybeans representing 78%.

Soy sauce and bean paste: The market is dominated by Chinese soybeans because bigger beans produce more sauce and paste. In 1983 approximately 6,000 tons of soybeans were used to make soy sauce and bean paste, with Chinese soybeans representing 75%, Vietnamese 14%, and Canadian 11%.

Soymilk: In 1983 about 1,800 tonnes of soybeans were used to make soymilk in Hong Kong, mostly by Vitasoy. Chinese and Canadian soybeans each share about 50% of the market.

Discusses various reasons that Chinese soybeans are very competitive in Hong Kong. The Chinese Oil, Cereal and Foodstuff Company in Hong Kong has an office in Hong Kong. Under this national organization are two agents specializing in Chinese soybeans. Transport time from China to Hong Kong is 7 days versus 32 days from Canada. Address: Director, Chung Hing Co., Hong Kong.

1559. Epp, Peter H. 1984. Growers' interest in supplying export markets. In: Ontario Ministry of Agriculture and Food, Market Development Branch. 1984. Workshop on Export Markets for Ontario Soybeans: Edited Proceedings. 45 p. See p. 42-45. Held 5 Sept. 1984 at Wheels Motor Inn, Chatham, ONT, Canada. 28 cm.
• ***Summary:*** In 1954 Ontario soybean growers began to seek export markets when the Ontario Soybean Growers' Marketing Board organized the first export of Canadian soybeans to the United Kingdom.

In the late 1960s, samples of Canadian soybeans were forwarded to Pacific Rim countries to try to determine whether Canadian varieties were acceptable to the tofu and miso markets of those countries.

The replies indicated that Japanese food manufacturers preferred U.S. varieties such as Kanrich, Amsoy, Corsoy, Ohio, and I.O.M. (Indiana, Ohio, Michigan) soybeans.

In 1970 an export promotion booklet titled "Cansoy" was introduced to 52 foreign countries promoting the story of Canadian soybeans.

"Ontario soybean samples continued to be forwarded annually but received no support or interest until the spring of 1972. At that time the C. Itoh people in Toronto indicated the Harwood variety, produced by the Harrow Research Station, possessed qualities favorable to the manufacture of tofu and miso. C. Itoh was willing to purchase a shipment of 750 tons for further testing by some of their customers. The soybean board made several important decisions: (1) To include a letter with the soybeans from the Canadian Grain Commission stating that the shipment consisted of 85-90% Harwood variety soybeans. In other words, the identity of the Harwood variety had been preserved or maintained, and not mixed with other varieties. This marks the start of Canada's identity preserved (IP) program and a strong commitment to providing the soybean characteristics that Asian food products wanted. (2) To pay $6,920 of the total freight and stevedoring costs to Japan.

In Feb. 1982 the OSGMB sponsored its first export mission to Asia–to Japan, South Korea, Hong Kong, Singapore, and Malaysia.

Since the Harwood variety, Dr. Buzzel of the Harrow Research Station has devoted a great deal of time breeding soybean varieties suitable for the edible market. Address: Chairman, Ontario Soya-Bean Growers' Marketing Board, Chatham, ONT, Canada.

1560. Fujimori, Ikuo. 1984. Users' requirements [of soybean varieties] for miso. In: Ontario Ministry of Agriculture and Food, Market Development Branch. 1984. Workshop on Export Markets for Ontario Soybeans: Edited Proceedings. 45 p. See p. 10-11. Held 5 Sept. 1984 at Wheels Motor Inn, Chatham, ONT, Canada. 28 cm.
• ***Summary:*** "In 1983, 1,600 miso makers in Japan produced 570,000 tonnes of miso. They used a total of 181,000 tonnes of soybeans comprised of approximately 121,000 tonnes from China, 20,000 tonnes of domestic soybeans [grown in Japan], and 20,000 tonnes of Canadian white hilum soybeans and others." The desirable characteristics of soybeans for making miso are as follows: A yellow or white hilum. The larger the seed size the better (more than 18 gm per 100 seeds); larger soybeans tend to be more consistent in texture, taste and color. The thinner the hull (seed coat) the better, but not easy to split. The cotyledon cells should be light yellow. The less foreign materials, and damaged and split beans the better; corn is an especially undesirable foreign material. The four key cooked conditions: 1. The texture of the cooked soybeans must be soft; 2. The soybeans should absorb water quickly and thereby cook quickly; 3. The soybeans should have a high carbohydrate content; 4. The color of the cooked soybeans must remain bright yellow. Address: Executive Vice-President, Takeya Miso Co. Ltd., Suwa, Japan.

1561. Hayashi, Nobu. 1984. Users' requirements [of soybean varieties] for natto and tofu. In: Ontario Ministry of Agriculture and Food, Market Development Branch. 1984. Workshop on Export Markets for Ontario Soybeans: Edited Proceedings. 45 p. See p. 12-14. Held 5 Sept. 1984 at Wheels Motor Inn, Chatham, ONT, Canada. 28 cm.
• ***Summary:*** From January to June 1984 soybeans imported to Japan from the USA had the lowest CIF price (US$331.31 per tonne), followed by soybeans from China ($350.16), with Canadian soybeans being the most expensive ($408.62).

The preferred characteristics of soybeans for natto are: Small in size, round in shape, and clear hilum. Beans should have a firm skin (seed coat) free of cracks. High sugar and amino acid contents. High carbohydrate and low calcium contents. "However the real suitability of the soybeans is determined by the taste of the natto."

The preferred characteristics of soybeans for tofu are: High protein and low oil contents, especially a high nitrogen solubility index (NSI) which affects the yield of tofu. The larger the seed size the better. Hilum color is not a big problem but a light-colored hilum is preferred since it may give a whiter tofu. A thin and firm skin (seed coat) which

reduces the soaking time required. “Like natto, the real suitability is known only when the tofu is tasted.” For all soybeans, it is very important that the price be competitive. Address: Gomei Shoji Co., Tokyo, Japan.

1562. Loh, Michael. 1984. An overview of export markets for edible soybeans. In: Ontario Ministry of Agriculture and Food, Market Development Branch. 1984. Workshop on Export Markets for Ontario Soybeans: Edited Proceedings. 45 p. See p. 1-9. Held 5 Sept. 1984 at Wheels Motor Inn, Chatham, ONT, Canada. 28 cm.
• ***Summary:*** “Ontario first exported edible soybeans in 1972 and over 12 years have built it into a $40 million business. 1981 was our best year when exports totalled $46 million... The bulk of Ontario’s soybean exports are sold to the Far East [East Asia]–Japan ($8 million in 1983), Singapore ($6 million), Hong Kong ($3.5 million), Malaysia ($1 million), Indonesia, and Korea.” In these countries soybeans are consumed in the daily diet of the people. In Japan, for example, they are made into miso, tofu, natto, soymilk and shoyu. Korea also makes soy sprouts, Indonesia makes tempeh, and Singapore, Malaysia, and Hong Kong make dried yuba. In addition, sales to the Netherlands, United Kingdom, and France are quite significant.

Concerning Ontario’s market share of soybean imports for food use: Japan imports 877,300 tonnes, of which 27,000 tonnes or 3.1% is from Ontario. Singapore and Malaysia import 36,000 tonnes, of which 20,000 tonnes or 55.0% is from Ontario. Hong Kong imports 20,000 tonnes, of which 10,000 tonnes or 50.0% is from Ontario.

Japan’s sources of its 877,300 tonnes of imported soybeans are as follows: USA 570,000 tonnes (65%), China 280,000 (32%), Canada 27,000, South America 300.

Japan uses its 877,300 tonnes of imported soybeans as follows: tofu 485,000 tonnes (55.3%), miso 180,000, natto 185,000, soymilk 25,000, cooked soybeans 10,000, shoyu 6,500, other 85,800. Within these figures, Ontario’s soybeans are used as follows: Miso 20,000 tonnes (11.1% of the total), natto 5,000 tonnes (5.9%), and tofu 2,000 tonnes (0.4%). Address: Export Development Specialist, Ontario Ministry of Agriculture and Food, Toronto, Canada.

1563. Ontario Ministry of Agriculture and Food, Market Development Branch. 1984. Workshop on export markets for Ontario soybeans: Edited proceedings. Ontario, Canada. 45 p. Held 5 Sept. 1984 at Wheels Motor Inn, Chatham, ONT, Canada. 28 cm.
• ***Summary:*** Contains 9 chapters by various authors, most cited separately. Address: Ontario, Canada.

1564. Canada–Dominion Bureau of Statistics, Agriculture Div., Crops Section. 1984. Handbook of selected agricultural statistics. Ottawa, Canada: Queen’s Printer and Controller of Stationery. 91 p. Continues “Selected Agricultural Statistics for Canada and the Provinces.” [Eng; fre]
• ***Summary:*** Pages 53, 55, and 57 give statistics for soybean area, yield, and production in Quebec and Ontario from 1976 to 1983 (projections). Address: Canada.

1565. **Product Name:** Grain Tempeh (With Okara, Brown Rice & Sunflower Seeds).
**Manufacturer’s Name:** Soy City Foods.
**Manufacturer’s Address:** 2847 Dundas St. West, Toronto, ONT, M6P 1Y6, Canada. Phone: 416-762-1257.
**Date of Introduction:** 1984. October.
**Ingredients:** Soy mash [okara], brown rice, sunflower seeds, vinegar, Rhizopus oligosporus.
**Wt/Vol., Packaging, Price:** 250 gm plastic bag.
**How Stored:** Refrigerated.
**Nutrition:** Per 100 gm: Protein 7.9gm, fat 9.76 gm, carbohydrate 12.0 gm, calories 167.4 gm.
**New Product–Documentation:** Label. Received 1988, Aug. 7 inches square. Printed on plastic bag. Orange, white, green, yellow and blue. Illustration of a sunflower and a field at the base of high mountains. Text and recipes in English and French. “150 g of tempeh provides a good source of protein. Keep refrigerated. Always cook thoroughly.” On back panel: “Health is the most precious thing you have. Sustain it by eating good food.” Recipe for Soy City Bake. “Tempeh naturally changes color from white through grey to black. These colouration changes improve the tempeh’s quality and flavour.” Letter from Jon Cloud: Introduced in the fall of 1984. Later he said spring 1984.

1566. *Trinidad and Tobago Review.*1984. The “noble bean” in the Caribbean. Oct. p. 27.
• ***Summary:*** “On the main road about 1 mile south of the heart of Roseau between Dominica’s western slopes and the shoreline is the Plenty Canada Soya Shop (a photo of which is shown). After only a week opening in Newtown, this unusual take-away outlet sells out of accras and [soy] ice-cream nearly every day.” Each morning the staff prepares batches of soyamilk. which is “used to make ice-cream and Tofu (soyabean cheese) and some is reserved to be sold as milk while the presscake [okara] is combined with tofu, wholewheat flour and seasonings to prepare the delicious and popular fried accras. The shop opens at one o’clock and serves a steady stream of customers until eight, unless stocks run out.”

Plenty Canada’s representatives arrived on Dominica in response to requests from local people. “With the co-operation of the government they have demonstrated simple home-scale soyafoods preparation in local areas and conducted soyabean seed trials. The initial interest in soyafoods was enough to encourage them to set up shop in central Roseau, grinding the beans at first by hand in a cocoa mill. As the business grew they needed more

production space and more contact with local people on a 'grass roots' level as the shop was intended primarily as a training situation. Since the move to Newtown a Dominican couple are planning to re-open the original premises as a second soya shop, Creole-style.

"Plenty's soya project is staffed by three volunteers from Canada and the USA, who receive only subsistence, and five wage-earning Dominicans who are learning to manage the shop. They have requests for soya shops in other parts of the island...

"Plenty brought in an initial supply of soyabeans from North America and are now supplying seed to two groups of local farmers who are keen to grow for the shop... The shop is beginning production of Tempeh, a cultured soya food from Indonesia."

Note 1. This is the earliest English-language document seen (Feb. 2004) that uses the term "soyabean cheese" to refer to tofu.

Note 2. This is the earliest English-language document seen (Aug. 2002) that uses the term "Noble Bean" in the title to refer to the soybean.

1567. *New Chronicle. The Conscience of the Nation (Dominica, West Indies).*1984. Soy foods available. Nov. 30.
• ***Summary:*** Today Nathalie Andrew is opening "Soy Kweyol," a take away health oriented catering service in the heart of Roseau, Dominica. All of her foods are made from soybeans, and are homemade. A photo shows Nathalie serving a beverage from her shop window. "Soy beans, it has been discovered, can now be grow locally. Farmers in areas like La Plaine have successfully produced their first crop of beans and have already begun preparations for planting a second crop. The seeds which take three months to grow can be obtained from the 'Plenty' Office in Victoria Street, New Town." Address: Dominica.

1568. *Soyanews (Sri Lanka).*1984. Plenty study team in Sri Lanka. 7(3):1, 7. Nov.
• ***Summary:*** "A three-member team from Plenty Canada arrived in Sri Lanka at the end of last month to study the impact of the country's Soyabean Development Program. The members are Suzy Jenkins Viavant, Soya Development Consultant, Maya Shearer, Nutrition Consultant and Larry McDermott, Director of Plenty Canada.

"Plenty Canada, like its American counterpart, Plenty International is a non-profit, non-governmental, relief and development organisation engaged in increasing self-sufficiency in developing countries through appropriate village technologies...

"Sri Lanka's Soyabean Development Program has attracted the attention of CIDA, the Canadian International Development Agency, which has commissioned this team from Plenty to make a study of the current state of the soya foods introduction program with an eye to improvements at grass roots level."

A photo shows Shearer and McDermott tasting soymilk ice cream. Plenty plans to use this type of ice cream to help introduce soyfoods to Sri Lanka. The Plenty team will end their visit to Sri Lanka near the end of this month.

A letter from Chuck Haren on page 7 states that he is currently operating a Soy Training Center at Roseau, Commonwealth of Dominica, in the West Indies. Plenty is now also operating soy development programs in Lesotho, Jamaica, and St. Lucia.

1569. Wiebe, Sandra L.; Bruce, V.M.; McDonald, B.E. 1984. A comparison of the effect of diets containing beef protein and plant proteins on blood lipids of healthy young men. *American J. of Clinical Nutrition* 40(5):982-89. Nov. [42 ref]
Address: Dep. of Foods and Nutrition, Univ. of Manitoba, Winnipeg, Manitoba, Canada.

1570. Brownridge, Eleanor. 1984. Tofu: Hospital food of the '80s? *Foodservice & Hospitality.* Dec. p. 22.
• ***Summary:*** Victor Food Products Ltd. makes Hi-Pro Tofu, containing 14.7% protein. Curded with calcium sulfate, it is rich source of calcium.

1571. Hymowitz, Theodore. 1984. Dorsett-Morse soybean collection trip to East Asia: 50 year retrospective. *Economic Botany* 38(4):378-88. Dec. [38 ref]
• ***Summary:*** Contents: Introduction. The plant explorers–Dorsett and Morse (a biographical sketch of each). Oriental Agricultural Exploration Trip (gives all key dates, places, and events on the trip). Dorsett-Morse collection. Soybean collection (a detailed discussion, including history and varieties): "This paper is devoted to the analysis of the 4,451 soybean *(Glycine max)* accessions collected by P.H. Dorsett and W.J. Morse during their plant exploration trip to east Asia 1929-1931. Until about 1950 the collection was used primarily for the development of vegetable type soybean cultivars. During this period many of the accessions were lost. Today only 945 of the original 4,451 accessions are available in the United States soybean germplasm collection. From the 1950s to the 1980s, as soybean production increased in the United States, so did plant pathogen problems. The Dorsett-Morse soybean accessions have been extremely valuable to plant pathologists and breeders as sources of resistance to certain pathogens. Individual genotypes in the collection have been used for genetic studies on morphological, physiological and biochemical traits. Due to the development and distribution of higher-yielding soybean cultivars, farmers in east Asia are no longer growing lower-yielding landraces. Although these landraces are now extinct in east Asia, many were collected by Dorsett and Morse and are preserved in

the United States soybean collection. Over the years, the Dorsett-Morse collection has increased in value and will be as useful to soybean scientists in the future as it has been in its first 50 years of existence."

"According to Piper and Morse (1923) no more than 8 soybean cultivars were grown in the United States prior to 1898. In 1898, the Office of Foreign Seed and Plant Introduction was established within the United States Department of Agriculture (USDA) to centralize introduction activities. Introduced plants were assigned permanent numbers under the Plant Introduction (P.I.) designation system. The first soybean listed in the P.I. system was P.I. 480 from South Ussurie, Siberia. The seeds were received from Professor N.E. Hansen in March, 1898 (Cook, 1898).

"Between 1898 and 1928, approximately 3,000 accessions of soybeans were introduced into the United States from China, Japan, Korea and India (Bernard, 1983). The collections were made principally by P.H. Dorsett, F.N. Meyer, and C.V. Piper. In the mid-1920s it was apparent to the USDA that the soybean was becoming a major American crop. Funds were allocated to send 2 plant scientists on a major expedition to Japan, Korea and northeast China, primarily to collect soybean germplasm and also to collect seed and propagating material of other crops of interest."

"Dorsett-Morse Collection: Dorsett and Morse sent back to Washington, DC, approximately 9,000 accessions of seed and propagating material (Ryerson, 1930). About half the accessions collected were soybeans (Table 1); the other half consisted of representatives from 230 genera. Individually or jointly, Dorsett and Morse collected germplasm from fruit and vegetable markets, food and flower shows, experiment stations, botanical gardens, seed companies, farms, factories making soybean and other food products, processing plants, and from the wild. In certain instances they contacted individuals to make collections of specific indigenous plants. In addition, the pressed 814 herbarium specimens, mostly 5 sheets each. They also brought back boxes containing butterfly, moth, wasp, spider and ant specimens.

"The explorers returned with 3,350 black-and-white still pictures, 6,700 ft of standard black-and-white motion picture negative and 2,400 ft of colored motion picture negative. Lastly, the brought back 210 publications, 341 different soybean food products and 236 bamboo-made articles (Dorsett and Morse, 1928-1931)."

"The Dorsett-Morse collection trip cost approximately $25,000. Even with today's inflated dollars the benefits gained by United States soybean farmers, processors, and consumers greatly exceed the original collection cost." Talk with Ted Hymowitz. 1998. June 15. In fact, the value to American farmers of one soybean introduced by this expedition, P.I. 88788, which is a source of resistance to soybean-cyst nematode (SCN) races 3 and 4, is greater than the cost of the entire expedition–several times over. Interestingly, it was not until the late 1980s and 1990s, some 60 years after the expedition, that the resistance contained in this one soybean began to be utilized by U.S. soybean breeders. This is a good example of the importance of collecting and preserving germplasm, whose value may not be known until many years later.

Tables show: (1) Soybean accessions introduced into U.S. by Dorsett and Morse and currently available in the U.S. soybean collection: 1929–366 in original collection / 126 currently available. 1930–2,261 / 554. 1931–424 / 206. 1932–1,400 / 59. Total–4,451 / 945 (=21.2% currently available).

Table 2. 41 of their soybean introductions that by simple selection became cultivars in the USA and Canada, with P.I. number, place of origin, and Maturity Group: Cultivar names: Agate, Aoda, Arisoy, Bansei, Bansei (Ames), Cherokee, Chusei, Delsoy, Emperor, Etum, Fuji, Goku, Green and Black, Hakote, Hidatsa, Higan, Hokkaido, Imperial, Jackson, Jefferson, Jogun, Jogun (Ames), Kanro, Kanum, Kura, Magnolia, Mendota, Nanda, Osaya, Rokusun, Sac, Sato, Seminole, Shiro, Sioux, Sousei, Tastee, Toku, Waseda, Willomi, Wolverine.

Table 3. Eight "vegetable-type soybean cultivars developed in the U.S. by hybridization and selection from germplasm introduced by Dorsett and Morse:" Disoy, Kanrich, Magna, Perry, Prize, Shore, Verde, and Yelnanda.

Table 4. Selected soybean introductions by Dorsett and Morse with resistance to certain pathogens: Column 1, organism (Fungal, bacterial, viral, and nematode pathogens). Col. 2, Disease. Col. 3, Source of resistance (PI numbers).

Table 5. Introductions by Dorsett and Morse listed in the soybean genetic type collection: Column 1, lines (11). Col. 2, P.I. number. Col. Description (Narrow leaflet, dense pubescence, black pod, etc.).

Note: This is the earliest English-language document seen (April 2004) that uses the term "landraces" (or "landrace," spelled as one word) to refer to indigenous soybean varieties. Address: Crop Evolution Lab., Dep. of Agronomy, Univ. of Illinois at Urbana-Champaign, Urbana, IL 61801.

1572. Meilke, Karl D. 1984. An economic profile of the Ontario soybean industry. *University of Guelph, School of Agricultural Economics and Extension Education, Publication* AEEE/84/9. x + 97 p. Dec. Also published in March 1983 under the same title as a 105-page report for Dr. Nelson Ball, Director, Agricultural and Food Development, Agriculture Canada, Toronto, ONT, Canada. 28 cm. [42 ref]

• ***Summary:*** Contents: 1. Introduction: The role of soybeans and soybean products in the world oilseeds market, the

importance of soybeans in Canada and Ontario, objectives, outline of the study. 2. Ontario soybean production: Soybean production, spatial distribution of production, number of farm production units and trends in their size, costs-of-production, Ontario soybean yields, expected changes in soybean production technology. 3. Ontario soybean marketing: Institutional structure, soybean domestic demand and trade, soybean meal domestic demand and trade, soybean oil domestic demand and trade, tariff structure, soybean marketing, seasonality of Ontario soybean prices. 4. Ontario soybean processing: Soybean processing capacity, technology employed, investment pattern, institutional structure, performance of the processing industry, financial performance, major changes in the processing industry. 5. The international soybean market: Major competitors, cost of production of competitors, recent and expected trends in production for major soybean exporters and importers (United States, Brazil, Argentina, Japan, European Community), policy and economic environment affecting soybean supply and demand. 6. Opportunities for expansion of production, processing and marketing of soybeans. 7. Constraints to expansion of Ontario soybean production, processing and marketing. References.

Tables: 1.4. Canada's trade in oilseeds and oilseed products, 1970-1982. 1.5. Canada's trade in soybeans and soybean products, 1970-1983. 1.6. Ontario farm cash receipts by commodity, selected years. 2.1 Ontario soybean area, yield, production, average farm price and farm value, 1970/71 to 1983/84. 2.2 Ontario soybean/corn price ratios and soybean production, 1970/71 to 1983/84. 2.3 Ontario soybean production by county, 1972 to 1981, '000 bushels. 2.4 Soybean production as a percent of total cropland, in Ontario, by county, 1976 and 1981. 2.6 Distribution of farms growing soybeans in 1981, by size, for selected counties. 2.7 Trends in soybean production costs and input use, Ontario, 1957-1959, 1973-1974, and 1980. 2.8 Estimated soybean production costs Ontario and the United States, 1980. 2.9 United States and Ontario soybean yields. 2.10 Estimated trend in soybean yields, Canada and the United States, bushels/acre. 3.1 Canada, supply and disposition of soybeans, 1968/69 to 1983/84, 1,000 mt. 3.2 Canada, imports of soybeans by country of origin, 1970 to 1981. 3.3 Canada, soybean exports by country of destination, 1970 to 1981. 3.5 Canada, soybean meal exports by country of destination, 1970 to 1981. 3.6 Canada, imports of soybean meal by country of origin, 1970 to 1981. 3.9 Canada, soybean oil exports by country of destination, 1970 to 1981. 4.1 Imports of soybean meal by province.

Figures: 2.1 Soybean acreage and production in Ontario, 1941-1982. 3.1 Comparison of Canadian (PSO2) and United States (PSO4*ER34) soybean prices, 1968(1)–1982(3). 3.3 Comparison of Canadian (PSM2) and United States (PSM4*ER34) soybean meal prices, 1968(1)–1982(4).

Argentina: Soybean production in Argentina is increasing rapidly, just as it did in Brazil a decade earlier, and for much the same reasons. Argentina's economy is heavily in debt, inflation is high and widespread, the policy environment is uncertain, and there are cash flow problems. However the soybean is seen as part of the solution to these problems. Soybean production has increased from about 0.027 mmt (million metric tons) in 1970/71 (beginning April), to about 0.496 mmt in 1975/76, to an estimated 4.150 mmt in 1982/83 (see table 5.9, from USDA, FAS).

About 85% of the soybeans cultivated win Argentina are double cropped with wheat. They compete for land with cattle and corn. The stage of very rapid growth in soybean production appears to be nearing an end as Argentina's farmers are reaching the limit of the land on which it is easy to grow soybeans.

Soybean crushing has been slow to catch up with production. Table 5.9 shows that the soybean crush increased from 0.021 mmt in 1970/71 to an estimated 1.907 mmt in 1982/83. Because of this, Argentina has become the world's second larger exporter of whole soybeans, exporting 135% more than Brazil in 1982/83. However policies are now in place which will lead to expansion of Argentina's crushing industry. In early 1983, whole soybeans were subject to a 25% export tax while oil and meal were subsidized by 10%.

Exports of whole soybeans from Argentina began in 1973/74 with 0.050 mmt, but returned to zero in 1975/76. Thereafter they skyrocketed from 0.111 mmt in 1976/77 to a peak of 2.776 mmt in 1979/80, falling slightly to an estimated 2.151 mmt in 1982/83.

Exports of soybean meal have been modest, ranging from 0.25 and 0.28 mmt between 1976/77 and 1980/81 (table 5.10, from USDA ARS). But consumption of soybean meal in Argentina has been increasing, approximately doubling between 1973/74 and 1982/83. A similar pattern emerges for soybean oil, but both exports and domestic demand are modest (table 5.11, from USDA ARS).

In the future, Soybean production in Argentina is expected to expand, although not as rapidly as during the last 10 years. The percentage of soybeans crushed in Argentina is expected to increase, and the country's exportable surplus of soybean meal and oil will probably grow.

Japan is the world's single largest importer of soybeans. Between 1970 and 1980 soybean imports to Japan increased by 31%.

Japan produces relatively small and declining amounts of oilseeds; primarily rapeseed, soybeans, and peanuts. Today Japan is a highly developed industrial nation and agriculture contributes only a small amount to the gross domestic product. In 1961 Japan's agricultural land area

peaked at 15.1 million acres, declining to about 13.3 million acres in 1978. "The area of orchards, permanent plantations and arable grasslands has increased considerably since 1960, while the area of ordinary upland fields (where oilseeds are grown) has dropped to about one-half its 1960 size."

Brazil: Beginning in the mid-1960s, Brazil started an aggressive export development program. Its goals were: (1) To slow the rate of inflation. (2) To diversify exports. (3) To increase exports of value-added products. (4) To maximize foreign exchange earnings. One commodity that benefited from this program was the soybean. Soybean production in Brazil rose from 1.50 mmt in 1970/71 to 15.20 mmt in 1981-82 (table 5.6, USDA FAS).

Various factors account for the dramatic growth in Brazilian soybean production: (1) The climate in southern Brazil makes it possible to double crop wheat and soybeans. Double cropping is the practice of consecutively producing two crops of either like or unlike commodities on the same land during the same year. The government's high support price for wheat substantially increased wheat area and encouraged double cropping. In 1975 some 50-70% of the soybean area in the major producing areas was double cropped with wheat.

(2) Because of import controls on nitrogen fertilizer, soybeans may have become more attractive to Brazilian farmers as a legume that fixes nitrogen in the soil. Since Brazil has produces relatively little of its own nitrogen fertilizer, and that fertilizer is relatively expensive, soybeans are attractive because they require little nitrogen fertilizer and (as a legume) they add their own nitrogen to the soil.

(3) Both Brazilian coffee policy and frosts have contributed to the increase in Brazilian soybean production. During the 1960s, when there was considerable excess in international coffee supplies, the government paid farmers to remove old coffee trees and plant other crops. Especially in the State of Parana, much of the new crop acreage was planted to soybeans. In July 1975, when severe frost killed over 15 percent of the coffee trees in Parana and severely damaged all the rest, much of this newly available land also went into soybeans.

(4) Brazilian soybeans tend to have a relatively higher oil content than their U.S. counterparts (19% vs. 17.7%). So in 1973 and 1974 when vegetable oil prices in world markets rose dramatically, cultivation of soybeans in Brazil became more profitable. As Thompson (1979) writes: "There is simply no other crop or beef which can compete with soybeans on a profit per hectare basis."

(5) Brazil's poultry industry is growing rapidly, so the domestic demand for soybean meal as a protein feed supplement has increased significantly.

Table 5.6 titled "Brazil, soybean supply and disposition," shows that soybean production increased from 1.509 mmt in 1970/71 to 12.835 mmt in 1982/03. The soybean crush increased from 0.932 mmt in 1970/71 to 12.728 mmt in 1982/03. Exports of whole soybeans increased from 0.290 mmt in 1970/71 to a peak of 3.516 mmt in 1975/76, then decreased to 0.810 mmt in 1982/03.

Brazil's policies designed to expand soybean crushing capacity and exports have been very successful; Brazil is presently the world's largest exporter of soy meal and soy oil (tables 5.7 and 5.8). Because of this emphasis on crushing soybeans in Brazil, the country's exports of whole soybeans have decreased since their peak in 1975/76 when exports where 33.5% of domestic production to only 6.3% of total production in 1982/83. Meanwhile, exports of soybean meal have increased from 0.588 mmt in 1970/71 to a peak of 8.582 mmt in 1981/82. And exports of soybean oil meal have grown from 0.003 mmt in 1970/71 to a peak of 1.212 mmt in 1981/82. Address: Ontario, Canada.

1573. **Product Name:** Tempeh.
**Manufacturer's Name:** Sooke Soy Foods Ltd.
**Manufacturer's Address:** 2625 Otter Point Rd., R.R. 2, Sooke, Vancouver Island, BC, V0S 1N0, Canada. Phone: 642-3263.
**Date of Introduction:** 1984. December.
**Ingredients:** Organic soybeans, water, and culture (Rhizopus oligosporus).
**Wt/Vol., Packaging, Price:** 8 oz (227 gm).
**How Stored:** Refrigerated or frozen.
**Nutrition:** Per 100 gm: Calories 163, protein 19 gm, carbohydrates 13 gm, fat 5 gm.
**New Product–Documentation:** Label. 1988, received. 6 inches square plastic bag. Blue, white, green, and yellow on clear film. "An excellent source of protein. Soy. Organic. No preservatives. On Back: Quick and Easy Recipes for Saucy Tempeh, and Sweet and Sour Tempeh. If you like our tofu–you'll love our tempeh! * Tempeh, like tofu, is so versatile it adapts itself to any cooking method and all types of cuisine. * Tempeh is terrific in stir frys, soups, stews, and sandwich spreads. * Tempeh is delicious deep-fried like fish sticks, broiled as cutlets, or barbecued. * Invent your own dishes; great in Mexican and Italian foods! Grey or black areas on tempeh are due to normal sporulation, and do not indicate spoilage." Letter from Wayne Fatt. 1988. Sept. 29. The product was introduced in Dec. 1984.

1574. **Product Name:** Hi-Pro Tofu.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1984. December.
**Ingredients:** Curded with calcium sulfate.
**Nutrition:** Contains 14.7% protein.
**New Product–Documentation:** Eleanor Brownridge. 1984. Foodservice and Hospitality. Dec. p. 22. "Tofu: Hospital Food of the '80s?"

1575. **Product Name:** Soy Milk.
**Manufacturer's Name:** Country Cottage Foods.
**Manufacturer's Address:** R.R. 1, Ohaton, ALB, T0B 3P0, Canada.
**Date of Introduction:** 1984.
**New Product–Documentation:** Soya Bluebook. 1984. p. 62.

1576. **Product Name:** Tofu.
**Manufacturer's Name:** Country Cottage Foods.
**Manufacturer's Address:** R.R. 1, Ohaton, ALB, T0B 3P0, Canada.
**Date of Introduction:** 1984.
**New Product–Documentation:** Soya Bluebook. 1984. p. 78.

1577. Flengmark, Poul; Augustinussen, Erik; Nordestgaard, Anton. 1984. Arter af baelgsaed 1979-81 [Species of grain legumes, 1979-81]. *Tidsskrift for Planteavl (Denmark)* 88(2):111-18. [11 ref. Dan; eng]
• ***Summary:*** Field trials were conducted with 9 grain legumes, including 2 soybean varieties. In some years, the protein yield of soybeans and lupins was higher than that of peas. The highest crude protein [CP] contents were found in lupin (approx. 48%) and soybean (35-43%). The soybean varieties tested were Fiskeby V (from Sweden) and Maple Presto (from Canada). Address: Statens Forsoegsstation, 4000 Roskilde, Denmark.

1578. **Product Name:** Tofu.
**Manufacturer's Name:** Nakasone Foods.
**Manufacturer's Address:** 1510-C 31st Street, North, Lethbridge, ALB, T1H 5J8, Canada. Phone: 403-328-4817.
**Date of Introduction:** 1984.
**New Product–Documentation:** Talk with Gene Arizono. 1987. He bought the company from Mark Nakasone in about 1986. Talk with Gene's wife. 1988. Sept. 27. The company has been renamed Sansei Foods. It will reopen in the spring of 1989 at Box 500, Coalhurst, ALB, T0L 0V0, Canada. Mark Nakasone started tofu production in 1984.

1579. **Product Name:** Aburagé (Deep-Fried Tofu Pouches), and Atsu-Agé (Deep-Fried Tofu Cutlets).
**Manufacturer's Name:** Nakasone Foods.
**Manufacturer's Address:** 1510-C 31st Street, North, Lethbridge, ALB, T1H 5J8, Canada. Phone: 403-328-4817.
**Date of Introduction:** 1984.
**New Product–Documentation:** Talk with Gene Arizono's wife. 1988. Oct. 17. Mark Nakasone made two types of agé when the Arizono's bought the company in 1986. He started making tofu in 1984.

1580. **Product Name:** [Tempeh Spread with Garlic].
**Foreign Name:** Tartiner au Tempeh.
**Manufacturer's Name:** Noble Bean.
**Manufacturer's Address:** Toronto, ONT, Canada.
**Date of Introduction:** 1984.
**Ingredients:** Organic soy tempeh, tamari, spring water, garlic, chives, soy oil.
**Wt/Vol., Packaging, Price:** 227 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 1985, undated. 3.5 inches in diameter. Orange and green on white. "Fresh-Delicious-Nutritious. Great for sandwiches or on crackers. All natural. Ready to eat." Letter from Allan Brown. 1985. Aug. 7. 8 oz for $1.95. Letter (fax) from Allan Brown. 1998. Jan. 21. This Garlic Tempeh Spread was first sold in 1984, and continued being sold until 1986.

1581. **Product Name:** Soymilk, Tofu, Soy Ice Cream, Fried Accras, or Tempeh.
**Manufacturer's Name:** Plenty Canada Soya Shop. Renamed Soy Development Center by 1987.
**Manufacturer's Address:** Roseau, Dominica.
**Date of Introduction:** 1984.
**How Stored:** Frozen.
**New Product–Documentation:** Trinidad and Tobago Review. 1984. Oct. p. 27. "The 'noble bean' in the Caribbean. Accras (fritters), a traditional local food, are now made by mixing tofu and okara with wholewheat flour and seasonings, then frying.

Plenty Bulletin. 1987. Fall. p. 4. Note: This is the earliest known commercial soy product made in Dominica.

1582. **Product Name:** Tofu [Moderately Firm].
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada.
**Date of Introduction:** 1984.
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 1984. 6 x 5 inches. Plastic film for tub. Red and orange. In English and French. Moderately firm. Coagulated with calcium sulphate. 16 oz. "Pasteurized. No preservative." Two packets of tofu recipes. "News break from Sunrise." 1987. "Look what we're doing to sell tofu! Sunrise sponsors popular consumer contest in October '87 issue of Women to Women Magazine. Grand Prize: All expenses paid 7-days trip for 2 to a gorgeous Palm Springs Health Resort." Contest supported in 3 ways: In-store displays; Magazine support, Oct. 4-color double page spread, front cover flash; Radio support–97 Kiss FM, 30 second spots. Form filled out by Peter Joe. 1988. May 20. Gives date.

1583. **Product Name:** [Soft Tofu].
**Foreign Name:** Tofu Doux.
**Manufacturer's Name:** Sunrise Market Ltd.

**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada.
**Date of Introduction:** 1984.
**Ingredients:** Water, soybeans, magnesium chloride (extracted from nigari), glucono-delta-lactone.
**Wt/Vol., Packaging, Price:** 10 oz (300 gm).
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 5.5 by 3.5 inches. Blue and white with color photo in middle of tofu cubes in a salad with lettuce, tomatoes, and cucumbers. "Pasteurized. No preservative." Product name also written in Chinese. Form filled out by Peter Joe. 1988. May 20. Gives date.

1584. Tetra Pak International. 1984. Tetra Pak V.I.P. Brochure (or Visitors Guide). Lund, Sweden. 46 p. 20 x 5 cm.
• ***Summary:*** This narrow booklet, out of print by 1990, contains a chronology of main events connected with aseptic packaging. V.I.P. Guides published after 1984 did not include this time line.

1944. The first development work starts on creating a package for milk that requires a minimum of material and gives maximum hygiene. This results in the principal on which the tetrahedral carton is based. Development work continued from 1944-1951.

"1951. AB Tetra Pak is formed in Sweden. The new packaging system, presented to the press in May 1951.

"1952 the first Tetra Pak machine was placed for a commercial operation in Sweden.

"1959. Development works starts on Tetra Brik, the new rectangular carton.

"1961 Oct. The first machine for filling bacteria-free milk aseptically is exhibited at a press conference in Bern, Switzerland." Note: All the company's machines prior to this date had been non-aseptic! The features of the packaging were low cost and hygienic. Much of the milk in Europe at this time was still sold unpackaged, in bulk.

"1963. March. Tetra Brik, the rectangular carton [non-aseptic], comes into commercial use in Medallia?, then in Stockholm, Sweden, later in the year.

"1964. The first AT machine [making aseptic tetrahedron packages] to be installed outside Europe is placed in Lebanon.

"1965. Deliveries of machines for aseptic filling gather speed–the trend towards longlife milk as a supplement to pasteurized starts in Europe and in several of the developing countries.

1968. The ½-litre Tetra Brik is introduced in Bochum, West Germany. The first version of Tetra Brik Aseptic is set up for field trials at Thun in Switzerland.

"1969. The first series of Tetra Brik Aseptic machines is ready for delivery. A new type of machine, the AT-1000, is introduced and the first deliveries go to Spain. Completion of the two-year delivery plan comprising 7 complete conversion lines and 25 aseptic filling machines for the Soviet Union.

"1974. Tetra Brik Aseptic is introduced in North America by Laiterie Cité in Canada. Concentrated juice is packed in 200 ml Brik Aseptic cartons and becomes a major dairy product.

"1979. Tetra Pak delivers the first aseptic Tetra Brik machine to the People's Republic of China, for chrysanthemum tea and sugarcane juice.

"1980. On exhibition at the DLG Fair in Frankfurt, West Germany, is the first Tetra King machine for 500 ml packages. Also presented is the new generation of aseptic Tetra Brik machines, AB 8. This machine has a capacity of 5,000 cartons per hour, made possible by a new sterilization bath.

"The market for portion packs continues to grow and a special space-saving aseptic Tetra Brik machine, AB 9, is now available for small volumes."

The original tetrahedron package, developed by the founder, Dr. Rausing, was originally called the Tetra Pak. Then the brick-shaped package, developed later, was called the Tetra Brik, and the company was named Tetra Pak, and the tetrahedral pack was renamed the Tetra Standard.

Concerning the "aseptic process": It was developed years before by Dole for a canning system. Then it lay dormant for a while. Address: Sweden.

1585. Bourdon, Mary B. 1984. Charlottetown Research Station 1909–1984 [Prince Edward Island, Canada]. *Agriculture Canada Research Branch, Historical Series* No. 19. (Research Station, P.O. Box 1210, Charlottetown, P.E.I., C1A 7MB, Canada).
• ***Summary:*** Chapter 6, "The Depression Years," notes that forages received increased emphasis. "From 1932 to 1936 forage research work at Charlottetown underwent expansion in the numbers of crops and varieties tested. New crops introduced included soybeans, millet, lupine, lespedeza,..."

Chapter 20, "Protein Crop Studies" (p. 61) is about soybeans. A large photo with a sign that reads "Regional Soybean Variety Trial," shows a field of soybean varieties that are being evaluated at the Charlottetown Research Station.

"In 1974, a soybean variety testing program was initiated at Charlottetown Research Station. Mr. J. Brian Sanderson, in cooperation with soybean breeder Dr. H.D. Voldeng, Ottawa Research Station, began testing soybean varieties under cool, moist Maritime conditions. Maple Presto, a variety developed at the Ottawa Research Station, was high yielding and sufficiently early to mature. When Brian Sanderson went on educational leave (1978-1980), Dr. John MacLeod assumed responsibility for soybean variety evaluation and management. Technology transfer projects funded by the Department of Regional Economic Expansion were begun under the direction of Dr. MacLeod.

One such project was to evaluate the commercial potential of Maple Presto in the region. This project and others like it were conducted as a cooperative effort of researchers, producers, and extension workers. Subsequent variety evaluation by Dr. MacLeod identified Maple Amber as a soybean variety with potential for the region."

Note: Chapter 6 seems to indicate that soybeans were not tested at this station on PEI prior to the early 1930s. Address: Canada.

1586. Central Soya Co. 1984. Annual report: Fifty years of growth and a future to share. Fort Wayne, IN. 28 p.
• ***Summary:*** This is part I of the company's two-part annual part on its 50th anniversary, celebrated on 2 Oct. 1984. Part I gives a review of the past year. Net sales were $1.73 billion. Earnings from continuing operations were $18.7 million, or $1.29 per share.

"In memoriam–H.W. McMillen. On March 26, Mr. Harold W. "Mick" McMillen, age 77, former Chairman of the Board of Central Soya Company, died in Fort Wayne. Throughout his 17-year tenure as Chairman of the Company, Mr. McMillen helped guide Central Soya form a $100 million feed and soybean processing operation to a billion dollar international agribusiness and food processing company."

Central Soya is divided into two groups: Agribusiness and Food. The Agribusiness Group is composed of four divisions: Soybean Processing, Grain Merchandising, International Feed, and Domestic Feed. The Soybean Processing Div. of the Agribusiness Group was strengthened by the acquisition of Victory Soya Mills of Ontario, Canada. This is Central Soya's 9th soybean processing plant and its first in Canada.

The Food Group is composed of parts: Fred's Frozen Foods, Refined Oil Division, Chemurgy Division, J.H. Filbert, Inc., Zatarain's, Inc., and Centre Brands, Inc. The Chemurgy Division "experienced significant increases in sales volume of all major product lines, led by Response textured soy protein concentrate and Centrolex granular lecithin." Response is used mostly in meat and poultry products. Centrolex is sold mostly to the health food market. Address: Fort Wayne, Indiana.

1587. Ontario Agricultural College Alumni Association. 1984. The Ontario Agricultural Hall of Fame: Charles A. Zavitz (1863-1942) (Leaflet). Guelph, Ontario, Canada. 4 panels. Front and back. 21 cm.
• ***Summary:*** This 4-panel leaflet is printed with dark brown ink on heavy beige paper. On the front panel is the title, plus a circular logo and the words "In recognition of Service to Ontario Agriculture." On the inside left page is an excellent portrait illustration of Charles Zavitz, done in 1984 and based on an existing photograph. He is wearing a double-breasted suit and necktie. His head is nearly bald and he has a white mustache and a white pointed beard. He looks serious (not smiling) and is facing slightly to the right. On the inside right page is a brief description of his career: "Charles Zavitz was a native of Coldstream in Middlesex County. A member of the first graduating class at the Ontario Agricultural College in 1888, for 41 years he was actively engaged in teaching and research on the Guelph campus. In 1883 he was placed in charge of all field crop experimental work; in 1904 he was appointed Professor of Field Husbandry and Director of Field Experiments, later being named Head of the Field Husbandry Department. Dr. Zavitz is best known for his work in cereal grains and his system of test plots. His greatest achievement was the development of 'OAC 21' Barley, but over 15 years he introduced many other varieties of cereal grains to Ontario farms.

"Ontario's success with alfalfa is attributed to Dr. Zavitz, and he was also a strong advocate of soybeans.

"His potato research was nationally accepted and he wrote a wide range of bulletins and publications.

"In 1916 he received an Honorary Doctor of Science degree form the University of Toronto, and in 1935 an Honorary Doctor of Law degree from the University of Western Ontario."

The back panel is blank. Note: 1984 marked the 100th anniversary of Charles' registration at OAC. Address: Guelph, Ontario, Canada.

1588. Perkins, David S. 1984. The history of Drackett. Cincinnati, Ohio. 18 p. (Unnumbered). 21 cm.
• ***Summary:*** This interesting history, containing many photos, was written for in-house use to update the company's history and to commemorate the company's 75th anniversary in 1985. "Another new venture begun in the 1930's was soybean extraction. The Company's goal was to provide raw materials from which other products could be developed. At the pilot plant, built in 1937, research led to the development of industrial proteins [probably 'alysol'] which could be used for manufacturing paints, adhesives, emulsifiers, and shoe polish. Scientists in the Nutrition Laboratory experimented with soybean products as animal feed.

"In 1940, Drackett completed building a soybean extraction plant and storage silos in Sharonville, several miles north of the Spring Grove Avenue headquarters. A year later the plant was operating round the clock producing soybean oil, and soybean meal for cattle feed. By 1945 Drackett was one of the largest soybean processors in the Midwest.

"In 1946 Drackett began using soybean products to make molding powder and plastic preforms for the molding industry. During this time Drackett research also developed a textile fabric, Drackett Soybean Azlon, which could be blended with rayon and either wool or cotton.

"Another soybean product Drackett marketed was Charge Dog Candy [Charge Candy for Dogs, launched in about 1949 and first mentioned in the 1949 annual report]. Its ingredients included soybeans and bone meal, and the product was to be used as a reward for training, as a special treat, and as a supplement to a dog's regular diet [Apparently dog's dated it.]

"As in other industries, World War II strongly affected Drackett. The business suffered from limited raw materials, manpower, and equipment... The Company did supply soybean fats, oils, and protein food materials to the Department of Agriculture... Once the war was over, the company quickly grew. It nearly doubled in size–from 225 employees in 1942 to 522 in 1945. More growth resulted from public financing in 1944, which provided funds for additional equipment and research."

"Although soybean extraction had helped the Company through World War II, post war conditions began to make the operation less profitable. In 1957 management decided to sell the Sharonville plant in order to concentrate Company efforts on researching, manufacturing, and marketing household cleaning products."

A page of photos shows: (1) The Sharonville soybean processing plant with its new silos. "By 1945 Drackett was the largest soybean processor in Ohio." (2) A sack of Ortho Protein, which had many industrial uses, including as a component for manufacturing shoe polish, paint, and adhesives. (3) A case of Charge Dessert for Dogs. (3) During World War II there was a shortage of cloth. Roger Drackett (left), his father Harry, Robert Boyer, and one other employee are shown "examining socks and a blanket made with Drackett Soybean Azlon. After World War II, the development of other synthetics made it less profitable to use soybean fibers for manufacturing cloth."

In 1948 Roger Drackett became president and an era of expansion began. In 1948 The Drackett Company of Canada, Ltd. was established as a subsidiary to produce and sell Drano and Windex in Canada. In 1957 and 1958 Drackett made its first bid for the night time television audience with sponsorship of two of America's favorite programs, "Wagon Train" and "Maverick." By 1963 Drackett also had branches in West Germany, England, and Australia. In 1964 Drackett stock, which had been public since 1944, was first listed on the New York Stock Exchange. In that year sales were $58,476,246 and net profits were $5,053,679. In 1965 Bristol-Myers acquired Drackett. In 1968 marketing for Metrecal and Nutrament was transferred to Drackett from another Bristol-Myers division. In 1972 Roger Drackett retired. As of 1984, Drackett products that are first in their category include: Windex glass cleaner, Drano drain cleaner, Vanish bowl cleaners, Renuzit air fresheners, O-Cedar mops and brooms, Endust dust and cleaning aid, Nutrament fitness and energy food, and Twinkle, a paste cleaner for silver or copper-clad kitchen utensils. Address: Director, Public Relations, The Drackett Co., 201 East Fourth St., Cincinnati, Ohio 45202-4178. Phone: 513-632-1500.

1589. Shurtleff, William. comp. 1984. Semi-log graph of soybean production in Canada, 1941-1981 (Overview). Lafayette, California. 1 p. [14 ref]
• ***Summary:*** If we plot Canadian production of soybeans (for beans) on a semi-log graph–the kind most useful in showing rates of growth and changes in those rates–we see that the rise in this production was most rapid from 1941 to 1955, when the crop reached 150,000 metric tons.

After 1955 the rate of growth slowed until about 1977 when it began to increase again; it reached 700,000 metric tons in 1980.

Note: From 1977 until about 1997 the rate increased again. Address: Founder and Director, Soyfoods Center, Lafayette, California.

1590. Spillers Premier Products Ltd. 1984. Product information. Puckeridge, Ware, Hertfordshire SG11 1RW, England. 8 p. Manufacturer's catalog.
• ***Summary:*** Soy products include Bredsoy, Soygold, Soyolk, Trusoy, Soyex, Trugran, Toasted Soya Bran, Defatted Soya Products, and imported Canadian Soya Beans. Address: Puckeridge, Ware, Hertfordshire, England. Phone: 0920 821291.

1591. Srihara, Priyadarshini. 1984. Processing to reduce the antigenicity of soybean products for preruminant calf diets. PhD thesis, University of Guelph, Canada. Page 3128 in volume 45/10-B of Dissertation Abstracts International. * Address: Univ. of Guelph.

1592. SilverPlatter Information, Inc. 1984—. AGRISEARCH (Computerized databases). [75000* ref. Eng]
• ***Summary:*** AGRISEARCH incorporates five databases covering agriculture, food, and nutrition–worldwide. The five are: CRIS from the U.S. Department of Agriculture (USDA); ICAR (Inventory of Canadian Agri-Food Research) from the Canadian Agricultural Research Council; ARRIP (Australian Rural Research in Progress) from the Australian Standing Committee on Agriculture; SIS from the Special Program for African Agricultural Research (SPAAR, World Bank, Washington, DC); and AGREP (the permanent inventory of AGricultural REsearch Projects) from the Commission of the European Communities. The coverage is up to 10 years and the database contains 75,000+ records. About 5,000+ records are added annually. Address: 100 River Ridge Dr., Norwood, Massachusetts 02062-9742. Phone: 1-800-343-0064.

1593. *Caribbean Contact.*1984? Canadians experiment with soybean in Jamaica.
• ***Summary:*** In Jamaica, Plenty Canada is "conducting an integrated soy foods programme involving the growing of soybeans and other food crops and the introduction of soyfoods such tofu, soy milk, and tempeh to householders. The project, which began in Sept. 1983, is currently assisting over 40 farmers in the growing of soybeans... and has produced soy foods at nearly 30 demonstrations to well over a thousand Jamaicans." Plenty has conducted variety trials for over 200 varieties of soybeans with the Hillside Farmers Association. "Plenty is working with six schools in St. Ann parish to supply materials and training for establishing school gardens. The produce from these gardens will be used in the school lunch programmes...

"Generally, two types of demonstrations are provided. First the people are shown how to cook with tofu and soy milk and are given samples of the foods prepared. In the second demonstration, the actual production of these products is shown, and instruction sheets provided...

"Plenty Canada is currently seeking funding from the Canadian International Development Agency for a three year extension of the project in Jamaica. During this time, a small production facility for soy foods will be set up, nutritional study and training undertaken, and further school lunch programmes developed...

"Plenty Canada is also conducting projects in Antigua, Dominica, St. Lucia, and St. Vincent in the Caribbean and Lesotho in Southern Africa."

1594. *SoyaScan Notes.*1985. The ten largest university libraries in the USA and Canada in 1985 (Overview). Jan. 1. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** According to a ranking by the Association of Research Libraries, America's ten largest university libraries, based on library holdings are as follows (million volumes in library/current serials (thousands)/million dollars spent for materials): 1. Harvard [Massachusetts] (10.6/99.5/$6.2). 2. Univ. of California at Berkeley [California] (6.3/101/$4.3). 3. UCLA [California] (5.7/80.9/$4.9). 4. Yale [Connecticut] (7.9/52.2/$4.1). 5. Stanford [California] (5.0/46.5/$4.6). 6. Univ. of Texas (5.1/61.1/$6.2). 7. Univ. of Toronto [Ontario, Canada] (4.9/42.9/$4.4). 8. Univ. of Michigan (5.6/61.4/$4.3). 9. Columbia Univ. [New York] (5.2/60.5/$3.3) 10. Univ. of Illinois (6.4/93.9/3.5).

The association's index takes into account volumes held, gross number of volumes held, microfilms held, current serials received, expenditures for library materials (incl. binding, salaries and wages, and other operating expenses), and number of professional and nonprofessional staff members.

A simpler ranking by total volumes held (in millions) is: Harvard (10.4), Yale (7.7), Illinois (6.2), Cal Berkeley (6.1), Michigan (5.5), Columbia (5.2), Stanford (4.9), UCLA, Texas, Toronto.

1595. Sierra, Edward. 1985. Re: Plenty's work with soybeans in the Caribbean. Letter to William Shurtleff & Akiko Aoyagi Shurtleff at Soyfoods Center, Jan. 11. 2 p. Typed, without signature on Plenty letterhead.
• ***Summary:*** Thanks for joining Plenty with a kind donation. Plenty was founded in Oct. 1974. PAS stands for Plenty Ambulance Service.

On page 8 of the Tenth Anniversary Newsletter [about Oct. 1984] the top photo shows our soy tech and a rasta friend looking over *The Book of Tofu.* We have taken to heart your suggestion for spelling "soyfoods" as one word–an appropriate industry standard.

Plenty's work with soybeans and soyfoods in the Caribbean is going well. On Jamaica, Plenty Canada is funding some agricultural work with variety trials of soybeans and other vegetables.

"On St. Lucia, as a result of our work last year, there are 135 farmers now growing soybeans and plans call for setting up a "Soy Shop" [to sell soyfoods] there soon. The first Soy Shop is on the island of Dominica where Plenty volunteers Sara [sic, Sarah] & Norman Ayerst have launched an integrated soy program (agriculture, variety trials, soy demonstrations, etc.) which, last year, flowered into the Soy Shop. Sara, who did the soy demonstrations on Dominica, found that there was a popular and tasty food called "rootis" (pronounced 'roadie'), which are sauce & meat wrapped in dough and fried. She whipped together a tasty tofu recipe and popped that in, and they're a great success! I quote to you from Norman's most recent letter:

"'The soya shop is still doing quite well. We sell about 800 accras (fritters) per day (25 cents ea.). We're open Mon. thru Fri.–can't handle the weekends yet. Ice cream is also a big seller and when we get our own machine we have requests for wholesale lots of the ice cream. We recently put tempeh on the market and it sells slowly (but steadily), at this point–along with the tofu and bottled soymilk. We are planning for some promotion of these last three products–milkshakes, sandwiches, etc. Once the folks taste some appetizing dishes they're much more willing to take the product home in its raw form. There are a lot of vegetarians here and people interested in health, and everyone seems to have a great love of good food.

"'We're operating out of a big house in the Newton district of Roseau... A friend of ours has reopened our old shop under the name of "Soy Kweyole". The new shop is its own entity [self owned by the local folks, which was one of our original goals for the project... ed.] but we have provided backup in many ways and we supply the basic raw materials for the soyfoods they sell. They're going into baked goods–high protein breads, cakes, pies, etc. It looks like they are going to do very well.

"'We are just gearing up to go into soyflour production and sales–it's probably going to be a big seller, judging from our initial marketing survey. Soy fever has definitely hit these parts...It seems as though people are starting to see the economic benefits to soy (not to mention nutritional value) and our project has gotten its feet on the ground. People want to help move things in a positive direction.'

"One of the heart connections that has come of our work with soy in the Caribbean, is with the rastas. Many of them have long ago vowed to "not eat no flesh mon!" stick with "Ital"–godfood, pure stuff. Many were into soy but had none. One fellow, Ras Bongo on St. Vincent, had been given four soybean seeds by one on another island. Ras Bonga planted them, and carefully saved the seed each year, until he could afford to try some. Meanwhile, he asked around for soy, how to use it, recipes, ideas for growing them, but found little. When we showed up we were able to supply him with more seeds and show him how to cook soyfoods. This is one of the intangible rewards that come with the work." Address: Plenty USA, P.O. Box 90, Summertown, Tennessee 38483. Phone: (615) 964-3992.

1596. Associated Press (AP). 1985. Peking paper says cheap tofu in short supply. *Toronto Star (Ontario, Canada).* Jan. 30. p. D8.
• ***Summary:*** For the Chinese, tofu (or soybean curd) is a staple food and a chief source of protein–although many westerners find it tasteless and spongy.

"Rationed by the state, the cheapest variety is in particularly short supply in Peking, the official English-language *China Daily* news reports."

Production of tofu cannot keep up with the demand of Peking's five million consumers, however there is no incentive to increase output since the state maintains tofu's traditional price (29 cents Canadian per kilogram) despite the rising costs of energy and raw materials–said the newspaper.

Last year, factories in Peking made 30.6 million kilograms (67 million pounds) of tofu, up 33% from 1979. But even with ration coupons, it is not always available at state grocery stores. Each resident of Peking is allowed 680 grams (24 ounces or 1½ pounds) a month of the most popular kind.

1597. *CSY FYI (Central Soya Newsletter, Fort Wayne, Indiana).*1985. New processing plant a waterfront institution: Victory Soya Mills. Jan. p. 3-4.
• ***Summary:*** Central Soya acquired Victory Soya Mills in Toronto 7 months ago. Canada's largest soybean crushing plant, it processes 1,350 tons of soybeans daily, 7 days a week, 24 hours a day. It has recently been operating at near record volume since two of the mill's chief competitors (Mapleleaf Monarch and Canadian Vegetable Oil Products) have endured strikes in recent months.

Central Soya's first processing plant in Canada, it employs 118 people. Its main products are soy oil (for food and industrial uses), and soybean meal (used in livestock and poultry feeds). Other products include lecithin and soybean flour, both used in the baking and confectionery trades. The plant has been a Toronto waterfront institution since World War II. It was built during the early 1940s by financier E.P. Taylor, and originally operated as Sunsoy Products Ltd., the first [sic] soybean processor in Canada.

1598. **Product Name:** Tofreezi (New Name for Frozen Buddha Soy Ice Cream) [Mocha Royalle, Berry Banana, Amaretto, Pineapple Coconut, Chocolate Mint, or Maple Walnut].
**Manufacturer's Name:** Metta Tofu Products Ltd.
**Manufacturer's Address:** Wren Rd., Denman Island, BC, V0R 1T0, Canada.
**Date of Introduction:** 1985. February.
**Ingredients:** Incl. soymilk, tofu, honey, fruits, nuts, natural flavorings.
**Wt/Vol., Packaging, Price:** Half liter and full liter cartons.
**How Stored:** Frozen.
**New Product–Documentation:** Label. 1985, undated. Red and blue with black letters on white. Shurtleff & Aoyagi. 1985. Tofutti & Other Soy Ice Creams. p. 78. Product Alert. 1986. March 3. Lists flavors. "Tofreezi is 75% soymilk and tofu by volume." Leviton. 1986. East West. June. p. 37. Rated the highest of all soy ice creams in America.

1599. Shanmugasundaram, S. 1985. The Tropical Vegetable Information Service. *TVIS News* 1(1):1. Feb.
• ***Summary:*** The Tropical Vegetable Information Service was established by AVRDC with grant funds from the International Development Research Centre of Canada. The objective of the project is to strengthen and expand specialized information analysis activities on tropical vegetables, specifically mungbean, soybean, and Chinese cabbage. The goals of the program are to collect, store, and analyze documents, and to establish a computerized information retrieval system for these crops. To meet these goals, TVIS will be responsible for producing a computerized literature-retrieval service and a variety of publications. The retrieval service should be operational by May of 1985. Address: AVRDC, Shanhua, Taiwan.

1600. Shurtleff, William; Aoyagi, Akiko. 1985. Tofutti & other soy ice creams: Non-dairy frozen dessert industry and market. 2 vols. Lafayette, California: Soyfoods Center. Vol. 1, 144 p. Vol. 2, 214 p. Index. Feb. 28 cm. [129 ref]
• ***Summary:*** The first study of the rapidly emerging soy ice cream market, based on historical principles. Contents: Volume I. 1. Introduction. 2. What are non-dairy frozen desserts? Standards, terminology, and labeling laws. 3. History of non-dairy frozen desserts. United States and

Canada (1918–present), History of Tofu Time Inc. and Tofutti, East Asia (1936-), Europe (1946-), Third World countries (1970-), Australasia and the Middle East.

Pages 75-92, titled "The Tofutti Era and Tofutti Clones, contain histories and descriptions of four categories of non-dairy ice cream companies. Within each category, the companies are listed in the sequence that their products appeared: (1) Small soyfoods companies: Penguino's Inc. (New York), Green World (Idaho), Garden of Eatin' (California), Soy City Foods (Ontario, Canada), The Soy Shop (Georgia), Metta Tofu Co. (British Columbia, Canada), Island Spring (Washington state), Evolutionary Foods (Arizona), Midwest Tofu & Sprouts Co. (Nebraska), Cream of the Bean (Illinois). (2) Soyfoods companies that used a mixture of tofu or soymilk and soy protein isolates to make Tofutti-type products: Brightsong Light Foods (California), Farm Foods (Tennessee), White Wave (Colorado). (3) Dairy companies (or non-soyfoods companies) that launched Tofutti-style products: Presto Food Products (California), Colombo, Inc. (Massachusetts), Honey Hill Farms (California), Continental Yogurt (California), Gloria Vanderbilt / Frusen Gladje Ltd. (New York), Barricini Foods Inc. (New York), Parvelle Corp. (New York), Carvel Corp. (New York), Tuscan Dairy Farm (New Jersey), Golden Seal Riviera Ice Cream Co. (New York). (4) Innovative makers of non-dairy frozen desserts that are not soy-based: Olympus Industries (Washington, Yodolo), and Imagine Foods (Arkansas, Rice Dream).

4. The soy ice cream industry and market in the U.S. and worldwide. 5. Nutritional value of soy ice cream. 6. Directory of people, organizations, and publications connected with non-dairy frozen desserts. 7. Tofu standards and soy ice cream. 8. Technical information on soy ice cream production. Ingredients and sample ingredient listings; Formulas and processing techniques. 9. How to calculate the amount of tofu in a tofu ice cream. 10. Bibliography (129 entries). 11. Index. About The Soyfoods Center.

Volume II. Documents and Graphics Related to Soy Ice Cream. This volume contains early historical and current popular articles, product labels, posters, graphics, and corporate brochures. A rich source of information for marketing and product development, these also document the rapid growth of soy ice creams worldwide. The publication is not paginated. Contents: 12. Early history (1918-1969). 13. Farm Foods and Ice Bean (1974-). 14. Tofu Time and Tofutti (1980-). 15. Other Soy Ice Creams and General (1976-). 16. Technical information on soy ice cream production. This last section lists ingredients and recipes, and discusses regulations, labeling, production processes, and quality of soy-based frozen desserts–largely ice cream, but also popsicles, sherbets, custards, etc. Fermented or cultured soymilks are also discussed briefly.

As of Jan. 1998, both volumes are bound as one.

Note: This is the earliest document seen (Oct. 2001) that contains industry or market statistics for soy ice cream by geographical region. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

1601. **Product Name:** Yves Tofu Wieners. Imitation Wiener (Meatless Hot Dogs).
**Manufacturer's Name:** Yves Natural Foods.
**Manufacturer's Address:** 1138 East George St., Vancouver, BC, V6A 2A8, Canada.
**Date of Introduction:** 1985. February.
**Ingredients:** Tofu, water, soybean oil, wheat gluten, egg albumen, wheat germ, nutritional yeast, sea salt, spices, hydrolized vegetable protein, natural hickory smoked flavor, beet powder, guar gum.
**Wt/Vol., Packaging, Price:** 8 wieners per 12 oz plastic pack. $2.89 retail.
**How Stored:** Refrigerated.
**Nutrition:** Per 1.6 oz wiener. calories 91, protein 7.8 gm, fat 9.8 gm, carbohydrate 3.0 gm, sodium 254 mg, cholesterol 0. 17% of protein RDA.
**New Product–Documentation:** Spot in Product Alert. 1986. March. Label. 1986, undated. "Soy product. Contains no meat." Ad in Natural Foods Merchandiser. 1987. March. p. 99. "Positively the best tasting tofu wieners you've ever tried. Made from fresh tofu and a special blend of fine natural ingredients." This ad (1/3 page, black and white) also appeared in East West Journal. 1987. June. p. 73. Leaflet. 1987. 8½ by 11 inches, color. Same title as ad. "Made from Fresh Tofu and a Special blend of Fine Natural Ingredients."

Talk with Tracy Wright, executive assistant to Yves Potvin. 1999. Nov. 24. This was the company's first product, launched in Feb. 1985.

Note: This is the earliest known commercial soy product made or sold by Yves. It is also the earliest record seen (Jan. 2010) concerning Yves.

1602. Kilgour, Christine. 1985. Re: Work with soyfoods for Plenty Canada in St. Lucia. Letter to William Shurtleff at Soyfoods Center, March 6. 2 p. Handwritten on Plenty letterhead. With envelope from St. Lucia.
• ***Summary:*** "Having received my 'soy training' [at The Farm] in Tennessee, I'm out in the field now sharing the knowledge. My husband John and I are living in St. Lucia..., where Norman & Sarah Ayerst have been doing a soy project. I recently saw a couple of letters you exchanged with Edward Sierra on The Farm and wondered if we could get in on your offer of a book or two on soyfoods...

"Soy, or 'soya' as we say in the Caribbean, is catching on like wildfire. What would we do without our old copy of *The Book of Tofu* or our wonderful new copy of *Tofu & Soymilk Production!* Apart from the text, Akiko's drawings are great. I've always admired her sure, fine hand. I've

enclosed my only U.S. dollar to help out with postage on a return letter–Sincerely, Christine Kilgour.

"P.S. We learned a new (to us) soyfood here from a Guyanese lady; she calls it tokara [tofu with the okara]. Curding the slurry all at once, then strain it. (No one wants to throw away the pulp or course.) This uses the whole bean, one less step than tofu. When seasoned up nicely, it can be fried, deep-fried, and is a tasty (similar in taste) replacement for what they call here an 'accra'–usually done with salt fish. How long would you say to boil the slurry before curding the whole thing–for good digestibility–remember it then gets fried after as well. We usually (boil) do it about 30 min. Sarah was doing it for an hour in Dominica, just to be sure. I'm interested in your opinion." Address: c/o Plenty, General Post Office, Castries, St. Lucia, West Indies.

1603. Flengmark, Poul. 1985. Solsikke og soyabønne–en nicheproduktion i Danmark? [Sunflower and soyabeans–A production niche in Denmark?]. *Dansk Froavl* 68(4):70-73. March. [Dan]

• ***Summary:*** Discusses soybean and sunflower cultivars, planting, soil requirements, fertilizer application, plant density, weeds, diseases, harvesting and utilization in Denmark. Soybeans must be inoculated with *Rhizobium japonicum* since these bacteria are not found in Danish soils. A table (p. 72) shows the yields of two soybean varieties from 1968 to 1973 at Roskilde. Donovans (from Canada) was tested from 1968 to 1971; its highest yield was 2,370 kg/ha in 1969, and its lowest yield was 1,200 kg/ha in 1968. Fiskeby V (from Sweden) was tested from 1969 to 1973; its highest yield was 2,220 kg/ha in 1969, and its lowest yield was 1,235 kg/ha in 1970. A photo (p. 73) shows soybeans growing at Roskilde. Address: Statens Forsoegsstation, Roskilde, Denmark.

1604. Gupta, Rajendra P.; Gupta, Rashmi R. 1985. Process for making soymilk with no beany flavor. *Canadian Patent Application* 477,902. March. *

1605. *J. of the American Oil Chemists' Soc.*1985. Soy pioneer bows out, others grow bigger. 62(3):474, 476. March.

• ***Summary:*** The soybean crushing industry is undergoing major restructuring as A.E. Staley Manufacturing Co., a pioneer in soybean processing, leaves the business. On 2 Jan. 1985 Cargill finalized its purchase of six soybean processing facilities from Ralston Purina. At that time it probably passed ADM to become America's largest soybean crusher. The plants acquired by Cargill are in Bloomington, Illinois; Lafayette, Indiana; Iowa Falls, Iowa; Kansas City, Missouri; Louisville, Kentucky; and Raleigh, North Carolina. A 7th plant owned by Ralston Purina at Memphis, Tennessee, was not offered for sale, but was scheduled to be closed in February.

With this acquisition, Cargill now has 20 soybean crushing plants in the Midwest and Southeast. The location of each of Cargill's 14 other soybean crushing plants, with daily processing capacities ranging from 20,000 bushels to 120,000 bushels, are given.

Ten days later the A.E. Staley Manufacturing Co. announced it had sold its soybean crushing business to Illinois-based independent Soy Processors Co., owned by a general partnership of individuals associated with Archer Daniels Midland (ADM) and including ADM as a minority partner. With this, ADM probably recaptured its lead, but only by a slight edge.

In October Staley agreed to buy CFC Continental Inc., the nation's second largest supplier to the food service business. Ralston Purina, meanwhile, in October acquired ITT's Continental Baking Co.

Central Soya Co. has 9 soybean crushing plants, 7 of them in the USA at: Gibson City. Illinois; Decatur and Indianapolis, Indiana; Bellevue, Delphos, and Marion, Ohio; and Chattanooga, Tennessee. These 7 U.S. plants are said to have a total capacity of about 10,000 tons/day of soybeans. The 2 plants outside the U.S. are in Utrecht, The Netherlands, and Victory Soya Mills in Toronto, Ontario, Canada.

Ag Processing, a cooperative based in Omaha, Nebraska, operates 6 soybean crushing plants in the USA at: Van Buren, Arkansas; Eagle Grove, Sergeant Bluff, and Sheldon, Iowa; Dawson, Minnesota; and St. Joseph, Missouri. Total crushing capacity is estimated at 11,000 tons/day of soybeans. Ag processing is now entering the edible oil refining business, constructing its first refinery adjacent to its soybean crushing plant at St. Joseph, Missouri. Expected to be completed in 1985, it is rated to have a refining capacity of 12 tank cars (720,000 pounds) of soybean oil per day.

Two poultry-related firms that are building oil refineries next to their soybean crushing plants are Perdue Inc. of Salisbury, Maryland, and Townsends of Millsboro, Delaware. Each refinery will have a capacity of 12 tank cars (720,000 pounds) of soybean oil per day.

According to the *Soya Bluebook*, the capacities of Perdue's two crushing plants are 700 tons/day at Salisbury, Maryland, and 600 tons/day at Cofield, North Carolina. Townsend's single crushing plant has a 1,200 tons/day capacity.

1606. Laidlaw, Maggie; Mercer, Nina J.H. 1985. Serum cholesterol, triglyceride and lipoprotein response in hypercholesterolemic males to replacement of cow's milk with a soy beverage (Abstract). *Federation Proceedings (FASEB)* 44(5):1498 (Abst. #6360). March.

• ***Summary:*** Isolated soy protein partially replaced animal protein in the diet of 19 subjects for 56 days. The total cholesterol of all subjects was lowered 4%, but that of the responders was lowered 8.5%. There was no significant change in LDL or VLDL cholesterol. Address: Dep. of Family & Consumer Studies, Univ. of Guelph, Guelph, Ontario N1G 2W1, Canada.

1607. Lee, Judith Fox. 1985. [Plenty Canada has been expanding its work...] (Brochure). Lanark, ONT, Canada: PLENTY Canada. 4 p. March. [Eng]
Address: Lanark, ONT, Canada.

1608. *Plenty Bulletin (Summertown, Tennessee).*1985. Tragedy in Africa: The root causes. 1(2):1-4. March.
• ***Summary:*** Starvation in Ethiopia is now attracting headlines. This article discusses the roots of hunger in Africa and Plenty's work with soyfoods in Africa. "Since 1978 Plenty Canada, assisted by Plenty-USA with primary funding from Canada, has undertaken a variety of rural development projects in Lesotho. Last year, the Near East Foundation in New York City awarded a grant to Plenty-USA to send three consultants to Lesotho. The three were to study health care, agriculture, and the potential for soy foods in the region where our project is located and make recommendations for expanding development efforts in these fields."

"The Plenty project village is located in a mountainous region along the Quthing River in southeastern Lesotho. The area served by the project encompasses a population of approximately 11,000 Basotho people residing in 116 villages. All these villages are within a day's travel from the project headquarters. The project currently provides employment for 150 to 200 Basotho people each day in a variety of activities including... soyfoods processing."

1609. *Grocer (The) (England).*1985. Soya milk spearheads move into yogurt, ice cream. April 6. p. 23.
• ***Summary:*** Michael Cole, managing director of Soya Health Foods of Trafford Park, Manchester, reports that he is selling about £3 million worth of his new Sunrise soya milk each year, and producing 46,000 gallons a week in half-liter aseptic Tetra Pak cartons. Major grocery chains have shown great interest in the product. Most competing soya milks are imported to England. Cole imports only his soya beans–from Canada. His company's biggest competitor is Granose, which is selling through Safeway and other outlets.

Cole presently has to feed his okara, a by-product of soymilk production, to pigs. "But in the next few weeks we will be installing a vegetarian sausage and burger plant which will take care of that."

Cole is a former health food shop owner who has all been involved in the marketing and manufacturing side of the trade, not only in England but also in India and America.

A large photo shows Cole standing next to stacked cartons of his Sunrise Soya Milk. The caption reads: "'Soya yogurt possible–Michael Cole."

Note: This was the article that led to the founding of Genice in Wales. Ray Pierce, who was with Classic Ices in Wales at the time read the article, learned that Michael Cole of Soya Health Foods Ltd. was planning to make a soy ice cream, then contacted Cole and offered to work with him in developing the product. It became Classic Ice's first non-dairy ice cream. Seeing its potential, Ray and Irene Barclay left Classic Ices and started Genice. Address: Manchester, England.

1610. Meyer, Edwin W. 1985. Details on work with The Glidden Company (Interview). Conducted by William Shurtleff of Soyfoods Center, April 8. 4 p. transcript.
• ***Summary:*** Discusses: ADM's solvent extraction plant in Chicago, Norm Witte, Central Soya's Miracle Meal (the world's first dehulled soybean meal made with a desolventizer-toaster; launched in 1952, it revolutionized the poultry industry), Central Soya's first desolventizer-toaster started operation in Decatur in May 1950, Central Soya's soy protein concentrate plants, Robert Boyer and Frank Calvert, Norman F. Kruse [pronounced Cruze], Endre F. Sipos. Elmer B. Oberg.

Say Calumet Harbor, not Calumet River; Ed thinks they acquired the 2 country elevators on the rivers but may have added on something. Ed Wilhelm might know.

Promine was used mostly by a large sausage manufacturer in Detroit, Michigan, for its functional properties. It was looked at but never used by John Morrell & Co., Armour, Swift, or Kraft–which had an all-meat image and mentality; "they never touched it.

Glidden sold Morrell a lot of soybean grits for dog food, for years during the 1930s; Morrell had a dog food company in Iowa, which made a popular canned product.

Ed had to make a rapid exodus from the Glidden Co. on Laramie after ADM bought it. They wanted to get in quickly; he left some important documents behind.

ADM did sell their lecithin through the American Lecithin Co. in the early days, just like Glidden. Ask Joseph Eichberg about the exact nature of the agreement.

Ed wouldn't say that Glidden soy operations Chicago was struggling, but their profits were not up to Glidden's expectations so they were considered a weak division. World War II helped a lot financially, especially since the industrial protein was requisitioned by the U.S. Navy through NFS. Toward the end of the war Glidden was supplying soy flour for the relief programs to the liberated areas, especially Italy.

Oberg is too gracious to say that Central Soya bought Glidden largely for its research team. The main reason was the price was cheap; the whole works for $14 million,

including all the elevators. Central got a great deal. Some years later they sold the Calumet Harbor elevators to Cargill for $8 million. At that time Central Soya had only a small development group under Sipos, who is still with them. He reported to Norm Kruse, starting in 1953. True, they basically had no research team. It was of equal importance to many others.

Steroids: After 1953 they had a major contract with Charles Pfizer Co. to process steroids and to sell them an intermediate for making corticoid steroids / hormones. That was the main business. They also had a little business with Charles Strauss in Montreal, Canada. "After 1953 we toll processed for Pfizer alone (that means for a given sum you process material for a certain party) so we remained in the steroids business."

Ed was an Abbott–Glidden–Upjohn fellow at Northwestern University. Abbott Labs and Upjohn were very interested in Glidden's work; they were involved in an informal joint research operation. General Mills got into making soy sterols at their Kankakee plant. Glidden put them into the business in a way. Upjohn was buying sterols from General Mills for many years. Upjohn is still using soybeans for their corticoid hormones. General Mills sold that plant to Henkel A.G., a German company.

The forerunner of Promosoy (Central Soya's soy protein concentrate) was Protein 70 (also called Pro-70), developed by E.B. Oberg. The pilot plant was built in 1959 and the full commercial plant later at the Gibson City plant. Pro-70 was developed at Glidden by Sidney Circle. He started working on the concentrate after the soy protein isolate, in about 1953-54. Pro-70 was not commercialized until after Central Soya bought Glidden's Chemurgy Div. in 1958. It was commercialized under the name Pro-70. The term Promosoy was introduced in about 1960 [sic, 1962] with the Gibson City plant. Both were exactly the same product–a soy protein concentrated. Response, their textured soy protein concentrate, was developed later under Ed Meyer's supervision.

The first formula for Rich Freeze was developed by Jim Liggett in about 1963-64; Ed was director of research at the time. It was developed partly for the Japanese market. "We [Central Soya] had an affiliate, Dai Nippon pharmaceutical, which was selling our granular phosphatides in Japan. Dai Nippon also had a few food ingredients, principally plant gums. They thought they might sell Rich Freeze, but they bombed out" [failed].

The Cone and Brown patent which was the basis for Alpha Protein. Address: 1701 N. Sayre Ave., Chicago, Illinois 60635. Phone: 312-637-0936.

1611. Shearer, Maya. 1985. Re: Work with Plenty Canada. Letter to William Shurtleff at Soyfoods Center, April 17. 2 p. Typed, with signature on letterhead.

• ***Summary:*** Maya has been in British Columbia and Alberta, Canada, doing some development / education lectures and slide presentations on Plenty's work. Now she has returned to work at Plenty's head office in Ontario, is gathering resource information, and is planning to go to Sri Lanka in 2-3 months. She will soon be sending Soyfoods Center a copy of the Sri Lanka report, after it has been formally accepted.

In Sri Lanka: For the first year of the project she will be "based in Kandy, which is a wonderful place in the mountains, rich with history and Buddhist culture." "We will be setting up small soy processing dairies and will be doing Agricultural work as well at five locations in Sri Lanka."

Her friend Steve Goldberg (who was with her in Guatemala and Mexico) will also be going to work on the project in Sri Lanka. He may visit the Soyfoods Center to order publications. Maya's background, prior to her work in nutrition, was all in business–and she misses it. Steve's background is as a consultant to private and public organizations in personnel, management of systems, development education, etc. Address: Plenty Canada, R.R. 3, Lanark, Ontario K0G 1K0 Canada. Phone: (613) 278-2215.

1612. Shurtleff, William; Aoyagi, Akiko. 1985. Soyfoods industry and market: Directory and databook 1985. 5th ed. Lafayette, California: Soyfoods Center. 220 p. Index. April. 28 cm. Updated every 1-3 years with a bibliographic supplement. [360 ref]

• ***Summary:*** Contents: 1. Introduction. 2. Directory of soyfoods manufacturers. 3. Directory of soyfoods support industry: Goods & services. 4. The many types of soyfoods. 5. Historical: Historically most important books and serials, earliest references to individual soyfoods. 6. Year in review. 7. Soyfoods industry and market in the U.S. 8. Tofu industry and market in the U.S. and Canada. 9. Soymilk industry and market: Worldwide and in the U.S. 10. Tempeh industry and market in the U.S. 11. Soy sauce industry and market in the U.S. and Japan. 12. Miso industry and market in the U.S. and Japan. 13. Soynut industry and market in the U.S. 14. Natto industry and market in Japan. 15. Statistics on fermented soyfoods in East Asia. 16. Soyfoods in restaurants, delis & cafeterias. 17. Soybean crushing industry in the U.S. 18. Soy oil industry and market in the U.S. 19. Soy flour and cereal-soy blends industry and market worldwide. 20. Modern soy protein products industry and market in the U.S. 21. Soyfoods terminology and standards. 22. Names of soyfoods in major foreign languages. 23. Soybean production worldwide and country-by-country. 24. Key institutions working with soyfoods worldwide. 25. Measures, weights, and equivalents. 26. About the Soyfoods Center & soyfoods consulting services. 27. Bibliography.

In February 1977 a Gallup poll in America showed a remarkable shift in the public's awareness of and attitudes toward soyfoods. The sampling of 1,543 adults across the nation found that: 33% believe that soybeans will be the most important source of protein in the future–ahead of fish at 24% and meat at 21%. 55% believe that "soy products have a nutritional value equal or superior to that of meat." 54% reported that they "had eaten foods containing soy protein as a prime ingredient within the past 12 months." Younger age groups living in large cities and those with college or university educations had the most favorable attitudes toward soy protein, indicating that support for soyfoods is likely to grow in the future. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

1613. Ayerst, Norman. 1985. Re: Work with Plenty in Dominica and Central America. Letter to William Shurtleff at Soyfoods Center, May 16. 3 p. Typed, with signature.
• ***Summary:*** "I received your message from Maya Shearer and am glad to hear of your interest in our Caribbean projects. Actually my wife [Sarah] and myself worked mostly on the island of Dominica. We spent 18 months there and returned to Canada on the 18th of Feb. '85.

"We worked on an integrated soybean project similar to the program that Laurie Praskin was involved in in Guatemala. My wife and I spent 6 months in Guatemala during 1980 with Laurie and all. At that time, I was responsible for the administration of the Solola Soy Dairy from the Canadian end.

"In Dominica we carried out the INTSOY variety trials and then went on spacing trails, companion planting trials and various other trials to test the long-range capacity of soybean growth in Dominica. Some of these trials were undertaken with the Government, some with the cooperative farming groups and some with individual farmers. We were somewhat overwhelmed with the response of farmers eager to try out soybeans–Dominica is a very agrarian society, by the way, and most people grow a portion of their own food. They are especially eager to find any new crops that can be sold on the local market–it is, overall, a very poor society. We have identified a few varieties that seem to be well suited for Dominica–one is R315. We obtained the original seed through the Intsoy programme and their seed originated in Cuba. It's a very fast growing variety (90 days to harvest) and seems to dry out well in the field even under damp conditions. There is definitely more work to do to identify the exact varieties suited for Dominica but I think we have made a good start and many Dominicans are now participating in the program.

"We opened our initial Soya Shop in downtown Roseau (the Capital pop. 12,000) in May of 1984. Originally, we produced soymilk and tofu which we incorporated into popular local recipes. A fritter that was tofu/okara/bean based became a very big hit in town and surpassed our expectations of immediate interest in soyfoods. A sandwich spread based on tofu/okara and 50% local vegetables was also very popular–and of course the soy based ice cream (especially peanut flavour) is very popular.

"From the original shop, we moved to the edge of town–the most densely populated area of Dominica–to larger premises on the main road south–down the coast. Here we were able to expand our production facility and go more into training programs and wholesaling products. (We do continue with the retail outlet using soyfoods in local recipes.)

"A second soy shop has opened in Roseau called Soy Kweyol. This was opened by a woman who had previously worked with our program. Her name is Natalie Andrews and she has had a history of experimentation with soybeans/soyfoods in Dominica. We are currently working with Natalie to produce flours from local produce (Natalie initiated this project 5 yrs. ago)–cassava, banana, pumpkin, breadfruit etc. With these flours we are adding toasted soyflour to bring up the protein content and experimenting with tastes and recipes to see what the potential of soyflour is in Dominica.

"Through the Ministry of Education we have been able to set up a series of soyfoods preparation courses–for the home and small business. These courses are part of their adult education program and summer school program. There is some talk of the schools incorporating the preparation of soyfoods into their home economics courses.

"The Soya Shop has been purchasing any soybeans that farmers are growing, with most being resold or given away as seed stock. This is the cycle that we are working towards being self perpetuating in the hands of Dominicans. We are working towards a number of small-scale farmers growing enough soybeans to supply the local market.

"I think that I have touched on the basic outline of the soy aspects of the Dominican project–we also have been working on community development projects such as building an addition onto a small rural school, supplying a school with lighting, building a breakwater with a fishermen's group etc -

"Plenty Canada has also undertaken an integrated soybean project in St. Lucia, Jamaica, and Antigua.

"I have enclosed some articles and part of a report on the Dominican project and hope that this gives you an idea of what we have been doing. I would appreciate receiving any comments or further queries from you. I have a high regard for your tofu books and we have used them often.

"My wife, Sarah, has become somewhat of an expert on soy cookery and nutrition over the past 15 years. She is very good at making soyfoods taste extremely delicious. The initial success of our Soya Shop in Dominica can be attributed, to a great degree, to Sarah's soy experience and the participation of some very enthusiastic Dominican women.

"As far as the slides go, I am currently working on duplicating my originals. I am also making prints from negatives. When I have this completed I will let you know and then perhaps we could make an arrangement whereby you can see them.

"Thanks again for your interest, wishing you all the best, Norman Ayerst."

The letter ends with two handwritten addresses on page 3: (1) Noble Bean, c/o Allan & Susan Brown, R.R. 4, MacDonald's Corners, Ontario, Canada. Sarah [Ayerst] has been working with Allan & Susan since we returned from Dominica. (2) Norman's home address.

Letter (e-mail) from Norman Ayerst. 2008. Aug. 3. "At the times we were working in Guatemala and Dominica, we were working for Plenty Canada–and Plenty Canada was in pretty close partnership with Plenty International on planning and executing the programs." Address: 64 Oxford St., Toronto, Ontario M5T 1P1, Canada. Phone: 416-920-2668.

1614. Shurtleff, William; Aoyagi, Akiko. 1985. History of tempeh: A fermented soyfood from Indonesia. 2nd ed. Lafayette, California: Soyfoods Center. 91 p. May. 28 cm. [402 ref]
• ***Summary:*** A slightly revised and updated version of the July 1984 edition. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

1615. Crump, Constance. 1985. FDA probing use of local soy beverage. *Ann Arbor News (Michigan).* June 19.
• ***Summary:*** "The inquiry concerns Edensoy, a soy drink made by Eden Foods of Tecumseh and manufactured in Japan by the Marusan Co. A recall of the product's explanatory pamphlet is expected, probably today. In Toronto, Ontario [Canada], a woman fed her infant Edensoy as the child's only food for five months after she developed difficulty in nursing, said Mike Potter, president of Eden Foods. At six months of age, the baby was hospitalized for malnutrition." The FDA investigation was confirmed by Alan Hoeting, FDA district director in Detroit.

The pamphlet was written by Potter in 1983 to explain the uses of Edensoy. About 9,000 copies were distributed in 1983 and 1984. It contains one sentence [actually one page] which could easily be misinterpreted to mean that Edensoy could be used as an infant formula.

"Eden's Store and Deli, 330 Maynard, was once part of Eden Foods, but there has been no connection in ownership or management for several years." Address: News Staff reporter.

1616. Hillock, Lawrence. 1985. Soy food maker hopes to win over western palates [Stephen Yu and Victor Food Products Ltd. in Toronto]. *Globe & Mail (Toronto, ONT, Canada).* June 24. p. B7.
• ***Summary:*** Victor Food Products Ltd., Canada's largest tofu maker, produces 10 tons of soybean curd and related products each week. He sells these foods mostly to oriental enclaves, health food stores, and specialty sections of large supermarkets. Last year his gross sales were less than $1 million. Address: Canada.

1617. Lippert/Whitehead Inc. 1985. Tofu Time Inc. to distribute Tofutti in Canada (News release). 136 East 57th St., New York, NY 10022. 2 p. June.
• ***Summary:*** William Neilson Ltd./Ltee. of Toronto will be the exclusive distributor and manufacturer of Tofutti throughout Canada. Neilson Ltd., established in 1893, is one of Canada's oldest ice cream manufacturers and is an affiliate of George Weston Ltd., a major retail food conglomerate. Address: New York. Phone: 212-838-3777.

1618. **Product Name:** Tempeh.
**Manufacturer's Name:** Noble Bean.
**Manufacturer's Address:** R.R. 1, McDonalds Corners (near Elphin), Ontario K0G 1M0, Canada. Phone: 613-278-2305.
**Date of Introduction:** 1985. June.
**Ingredients:** Soybeans, water, culture.
**Wt/Vol., Packaging, Price:** 12 oz perforated plastic bag (not vacuum packed).
**How Stored:** Frozen.
**New Product–Documentation:** Talk with Allan and Susan Brown of Noble Bean. 1998. June 22-24 (which see). In June 1985, after about 5 years in Toronto, they bought ten acres of land near McDonalds Corners (not far from The Farm in Lanark, Ontario), and moved Noble Bean onto that land. There, in their third location, they once again started to manufacture commercial tempeh. Remember: They began in Lanark in June 1979 and continued in Toronto in June 1980.

1619. Plenty Canada. 1985. Plenty Canada project highlights (Brochure). Lanark, ONT, Canada. 6 p. June.
• ***Summary:*** Includes discussions of Plenty Canada soy projects in Sri Lanka, the Caribbean (Dominica, St. Lucia, Jamaica), and Lesotho. On Dominica, within 6 months of Plenty Canada setting up a Soy shop, one other successful Soy Shop (named Soy Kweyol) has been opened by a local Dominican who happened to be the first wholesale customer of the Plenty Soy Shop. On St. Lucia, a group of farmers at La Pelle succeeded in growing approximately 10 acres of soyabeans. Denn Farm, a commercial farm, grew 5 acres of soyabeans.

On Jamaica, over 1,000 people received actual training in soybean processing over a 1-year period.

Note: In 1985 Plenty Canada sent Soyfoods Center a 4 by 6 inch color photo (taken recently) of the Lesotho Soy Dairy, part of the Village Technology Training Centre (VTTC), with solar panels on the thatched roof and two Plenty volunteers seated on the thatched roof. Address: Lanark, ONT, Canada.

1620. **Product Name:** Tempeh Burgers, and Tofu Burgers.
**Manufacturer's Name:** Sooke Soy Foods Ltd.
**Manufacturer's Address:** 2625 Otter Point Rd., R.R. 2, Sooke, Vancouver Island, BC, V0S 1N0, Canada. Phone: 642-3263.
**Date of Introduction:** 1985. June.
**Ingredients:** Tofu (or tempeh), natural soy sauce, herbs and spices.
**Wt/Vol., Packaging, Price:** Tofu: 8 oz. Tempeh: 6 oz.
**How Stored:** Refrigerated.
**New Product–Documentation:** Labels. 1985. 3 inch diameter. Self adhesive. Brown (Tofu) or Green (Tempeh) on beige. "Ready to serve, or steam for 5 minutes. Meatless."

1621. **Product Name:** Tofuette (Soy Ice Cream).
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2849 Dundas St. W., Toronto, ONT, M6P 1Y6, Canada.
**Date of Introduction:** 1985. June.
**How Stored:** Frozen.
**New Product–Documentation:** Interview with Jon Cloud of Soy City Foods. 1985. He first starting making this soft serve ice cream in the summer of 1985. Now called Tofuette and sold coast to coast. There are 3 soy ice cream companies in Canada now.

1622. **Product Name:** Toffait (Non-Dairy Soy Ice Cream) [Chocolate, Vanilla Almond, or Wildberry].
**Manufacturer's Name:** Toffait Manufacturing Ltd.
**Manufacturer's Address:** 1003B–55th Ave. N.E., Calgary, ALB, T2E 6W1, Canada. Phone: 403-295-1008.
**Date of Introduction:** 1985. June.
**Ingredients:** Incl. isolated soy protein, white sugar, glucose, fructose.
**Wt/Vol., Packaging, Price:** 500 ml hard frozen packs.
**How Stored:** Frozen.
**Nutrition:** 150 calories per 100 gm.
**New Product–Documentation:** Poster. 1985, undated. 18 by 24 inches, color. "Toffait. Thinfully delicious." Poster. 1985. "How We Improved on the World's Favorite Dessert." Interview with Philip Choy. 1985. This product is very low calorie, with no added fat. It is made from soy protein isolates, with no tofu, since if it contained tofu, which has oil, dairy labeling restrictions would apply. Sold $300,000 in first 2 months in Alberta only. Press Release. 1985. With analyses. 9 p. Canadian Jewish News (Toronto, ONT). 1985. Marketing (Toronto, ONT). 1985. July 15. Toffait became available in grocery stores throughout Alberta in late June, 1985. Choy is an ice cream store proprietor.

1623. *Marketing (Toronto, Ontario, Canada).*1985. 'We all scream for–Toffait?' July 15.
• ***Summary:*** Toffait, made by Toffait Manufacturing of Calgary (Barry Sullivan is general manager), was recently launched in Alberta; it could be on supermarket shelves in eastern Canada before this fall. A black and white photo shows a Toffait ad titled "How we improved on the world's favorite dessert."

1624. Vansickle, Janice. 1985. Processing plant sold to U.S. firm. *Windsor Star (Essex County, Ontario, Canada).* July 20. p. A3.
• ***Summary:*** The sale of Maple Leaf Monarch, a soybean crushing plant on Maplewood Drive in Windsor, "was to have been completed Friday" [July 19] to Archer Daniels Midland Co. of Decatur, Illinois, for an undisclosed amount. The plant employs 90 unionized employees. A local union leader said at least 11 non-unionized employees were dismissed, but Dick Burket, vice-president of ADM, said his company is not planning any changes in either management or operations. Address: Star agriculture reporter.

1625. Gupta, Raj. 1985. Work with soymilk and tofu (Interview). *SoyaScan Notes.* July 21. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** On 23 May 1985 a company that Raj helped to establish started production of tofu in India in Kanpur (a city in northern India in southern Uttar Pradesh, on the Ganges River, 250 miles southeast of Delhi; Population 1.2 million). Last year he bought and imported a Takai W30B tofu system–which can actually process 50 kg/hour of soybeans. There is a big demand for his tofu; he can't keep up with it. One month ago he was making 500 kg/day of tofu, but soon, when his packaging improves, he will be making 1,500 kg/day.

For packaging, he uses a heat-sealed pouch, which is sealed with a Takai K-1020 sealer. he makes his own plastic containers. His larger plan is to establish franchises, and to manufacture tofu equipment in India.

He has applied for a process patent (not a machine patent) on a cold grind process for making soymilk with no beany flavor. He wants to license the patent. The concept sounds like a breakthrough. He has patented it in India, the USA, and internationally. It is based on a special machine which can be made inexpensively, in small shops.

Another tofu company in India is Tofu India Ltd. One company that was located near Delhi is no longer in business.

Note: This is the earliest document seen (Feb. 2010) concerning the work of Raj Gupta with soyfoods. Address: PhD, 627 Gaines Dr., Ottawa, ONT, K1J 7W7, Canada. Phone: 613-741-2558.

1626. Nyman, Judy. 1985. Frozen Tofu is the latest craze for Canadian consumers. *Toronto Star (Ontario, Canada).* July 31. p. D4.
• ***Summary:*** "Frozen tofu" refers to soy ice cream, called the "ultimate Yippie-turned-Yuppie treat." It has just become widely available in Canada.

1627. Haumann, Barbara Fitch. 1985. Trends of processing, consumption around the world. *J. of the American Oil Chemists' Soc.* 62(7):1070-76. July.
Address: JAOCS.

1628. Jason, Dan. 1985. Short-season soybeans. *Organic Gardening* 32:78-81. July.
• ***Summary:*** "Fresh green soybeans have a buttery, delicious flavor and cook fast." If you choose the proper short-season varieties, you can also raise soybeans to the dry-bean stage in northern climates. And the number of short-season varieties is growing. The author lives on Salt Spring Island, just northeast of Victoria, BC, about 50 degrees north latitude. He had good results with the soybean varieties Butterbeans (eaten green) and Black Jet (eaten dry), both available from Johnny's Selected Seeds, Albion, Maine 04910. Address: Fulford, BC, Canada.

1629. Plenty Canada. 1985. Sri Lanka Soy Utilization Project. R.R. #3, Lanark, ONT, K0G 1K0, Canada. 10 p. Unpublished manuscript.
• ***Summary:*** The 5-year project, aimed at increasing consumption of soyfoods in Sri Lanka, proposes to establish four soya nutrition centers in Kandy, Colombo, Vavuniya, and Tanamalwila. Each center will have equipment to make soymilk, tofu, soy ice cream, tempeh, and soy flour (to use to fortify wheat in rotti, pittu, etc.). Each center will conduct demonstrations and training classes to community groups. Address: Lanark, ONT, Canada. Phone: 613-278-2215.

1630. Voldeng, H.D.; Seitzer, J.F.; Hamilton, R.I. 1985. Maple Isle soybean. *Canadian J. of Plant Science* 65(3):777-79. July.
• ***Summary:*** Contents: Introduction. Pedigree and breeding methods. Performance. Other characteristics. Pedigree seed stocks. Address: Research Station, Agriculture Canada, Ottawa, ONT K1A 0C6, Canada.

1631. Voldeng, H.D.; Seitzer, J.F.; Hamilton, R.I. 1985. Maple Ridge soybean. *Canadian J. of Plant Science* 65(3):781-83. July.
• ***Summary:*** Contents: Introduction. Pedigree and breeding methods. Performance. Other characteristics. Pedigree seed stocks. "Maple Ridge is a soybean cultivar of early maturity, later than Maple Presto but earlier than Maple Amber. Seed yields are generally equal to those of Maple Amber and about 20% greater than those of Maple Presto." Address: Research Station, Agriculture Canada, Ottawa, ONT K1A 0C6, Canada.

1632. Datz, B. 1985. Augusta [Maine] woman's complaint gets [Edensoy] formula folders recalled. *Kennebec Journal (Augusta, Maine).* Aug. 3.
• ***Summary:*** Eden Foods has sold 8 million single serving packages of Edensoy in the last 2 years, according to company president Michael Potter in a phone interview. A six-month old Canadian infant was fed nothing but Edensoy for 5 months. Severely malnourished, the child developed rickets from a lack of vitamin D and vision problems from a lack of vitamin B. Edensoy was launched on the U.S. market in August 1983. Mary Owen, a dietitian from Augusta, Maine, has been vocal about raising questions the suitability of Edensoy for infants. She obtained a brochure describing Edensoy then in late 1983 wrote Eden Foods several questions about Edensoy's level of calories, protein, fat, minerals, and vitamins compared with breast milk. Michael Potter said that, until about 9 months ago, he didn't know about the requirements of the Infant Formula Act of 1980.

In April 1985 the FDA recalled Eden's brochure describing Edensoy "in response to false advertising and nutritional deficiencies of two soy drinks produced by another firm. Their brand names are Nutra-Milk and Kama-Mil."

1633. Kidd, Kenneth. 1985. Tofutti causes Big Apple stir... Marketing. *Toronto Star (Ontario, Canada).* Aug. 11. p. F4.
• ***Summary:*** As company directors sit around a board room table, eating Tofutti, the chairman suddenly exclaims: "Has the world gone totally tofutti?"

One director leaps onto the table and starts dancing, while the music of Little Richard's 1955 hit song "Tutti

Frutti" (All Rooty) swelled in the background. Note: This was Tofutti's first TV ad and Little Richard's first hit record.

The ad, now airing in New York City, has been quite a hit. David Mintz, inventor of Tofutti, says its "infectious." By making an ice cream out of tofu, Mintz has found an ingenious way of getting around kosher dietary laws and of parlaying this idea into a multi-million dollar business.

There are now more than 50 flavors of Tofutti, a tofu hamburger (almost ready; tentative name Tofutti MacFuttie), and even a chain of Tofutti Gourmet shops on the drawing boards. It all started in 1972. Tells the story of how Mintz says he invented Tofutti.

Tofutti is presently available at 36,000 outlets across the USA, and a worldwide launch is immanent. Mintz has just shipped his second order to Hong Kong. His next plans are for Singapore and Japan.

"William Nielson Ltd. has now started importing Tofutti into Canada in both hard 'ice-cream' take-home tubs and larger soft-serve containers for restaurants." However advertising claims about cholesterol content are not allowed by Health and Welfare Canada, so Neilson is asking for an amendment to the rules.

1634. *Country Folks (Palantine Bridge, New York).*1985. Consumer alert issued on "soy drinks" fed to infants. Aug. 12.
• ***Summary:*** "The Maine Department of Agriculture, Food and Rural Resources has issued a consumer alert warning parents that so-called 'soy drinks,' or soy 'milks,' should not be used as a sole source of nutrition for infants."

"The federal Food and Drug Administration recently issued several such warnings about specific brands of soy drinks often sold in health food stores. Earlier this year, a 6-month-old child in Canada developed rickets, vision problems and malnutrition after being fed a soy drink product called Edensoy as a sole source of nutrition for 5 months." Brands with serious nutritional deficiencies and false advertising included Nutra-Milk and Kama-Mil. Also published in The Journal (Lewiston-Auburn, Maine). Aug. 5.

Note: This is the earliest document seen in which the U.S. Food and Drug Administration uses the term "milk" to refer to soymilk. Address: Maine.

1635. Hamlin, Suzanne. 1985. Tofu dessert questioned as ice cream alternative. *Toronto Star (Ontario, Canada).* Aug. 14. p. D16.
• ***Summary:*** This is a summary of: Hamlin, Suzanne. 1985. "Tofutti: Can its time be up?" *New York Daily News.* Aug. 7. Address: New York Daily News.

1636. Gupta, Raj P. 1985. Re: Visit to Soyfoods Center, work with soymilk. Letter to William Shurtleff at Soyfoods Center, Aug. 24. 1 p. Typed, with signature.
• ***Summary:*** "It was indeed very nice meeting you last week. Your reaction to the soymilk samples I brought with me was very gratifying." Raj is enclosing a "proprietary submission agreement" and, after it is signed, will send a copy of the invention patent. Address: VP Tech., ProSoya Foods International, 627 Gaines Drive, Ottawa, ONT, K1J 7W7, Canada. Phone: 613-741-2558.

1637. McDermott, Lawrence. 1985. Plenty Canada's work with soybeans and soyfoods (Interview). *SoyaScan Notes.* Aug. 25. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** An in-depth discussion of Plenty Canada's work with soyfoods in Sri Lanka, Lesotho, and the Caribbean (Dominica, St. Lucia, Jamaica, Haiti, Antigua, and St. Vincent). Address: Executive Director, Plenty Canada, ONT.

1638. **Product Name:** Tofu Glacé (Soy Ice Cream) [Classic Vanilla, Southern Pecan, Chocolaty Chocolate, Fudgy Mocha, Amaretto Chocolate Almond, Really Rocky Road, Strawberry Strawberry, or Minty Chocolate Chip].
**Manufacturer's Name:** Cuisine Nature. Made in Pennsylvania, by Lehigh Valley Dairies.
**Manufacturer's Address:** Montreal, QUE, Canada.
**Date of Introduction:** 1985. August.
**Ingredients:** Incl. Tofu, corn sweeteners, sugar, unsaturated vegetable oil.
**Wt/Vol., Packaging, Price:** Pint.
**How Stored:** Frozen.
**New Product–Documentation:** Spot. 1986. "Tofu Glace, a new frozen dessert product previously available only in Canada. In northeastern Pennsylvania Tofu Glace is produced exclusively by Lehigh Valley Dairies." (Note: Directory assistance shows this company to be located in Schuylkill (pronounced SKOO-kul) Haven, PA 17972. Phone: 717-385-1884). It is a non-dairy product. Talk with Yvon Tremblay and Richard Milon. 1987. Dec. 11. They have a label. "This product, made by Bernie Clark of Cuisine Nature (he's rich) contains no tofu. His phone is 514-636-7916."

Soya Newsletter. 1988. July/Aug. p. 8. Address now given as 575 Lepine, Dorval, Quebec, Canada H9P 2R2. Contact Roland Cyr. Phone: 514-636-7916. Ingredients include tofu, soymilk, fresh fruits, nuts, and corn sweeteners. Flavors: Chocolate, Vanilla, Maple Walnut, Strawberry, Orange Mango, and Southern Pecan.

1639. *Modern Dairy (Toronto, ONT).*1985. Neilson launches 'Tofutti' [in Canada], seeks labeling amendment. Aug.
• ***Summary:*** William Neilson Ltd./Ltée. is seeking a labeling amendment from the Health Protection Branch of

Health and Welfare Canada to allow the label to read "Contains No Cholesterol" or "Cholesterol Free."

1640. O'Leary, James. 1985. Tempeh Mexicana. 50+ protein rich recipes. Vancouver, BC, Canada: Benedict Books, 115-8675 French St., V6P 4W5. 48 p. Aug. No index. 14 cm. [5 ref]
• ***Summary:*** Contents: What is tempeh? Tempeh: Deepfried, mockfried, smallfried. About all. How to make. Recipes. Addresses, books, other important matters.

Note: This little cookbook shows how nicely tempeh and Mexican food work together. Address: #115-8675 French St., Vancouver, BC, Canada.

1641. Sarwar, Ghulam; Peace, R.W.; Botting, H.G. 1985. Corrected relative net protein ratio (CRNPR) method on differences in rat and human requirements for sulfur amino acids. *J. of the Association of Official Analytical Chemists* 68(4):689-93. July/Aug. [30 ref]
• ***Summary:*** The rat's requirement for methionine is about 50% higher than that of humans. The limiting amino acid in soy protein is methionine. Address: Health and Welfare Canada, Food Directorate, Health Protection Branch, Tunney's Pasture, Ottawa, Ontario, Canada K1A 0L2.

1642. **Product Name:** Okara tempeh.
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2849 Dundas St. W., Toronto, ONT, M6P 1Y6, Canada.
**Date of Introduction:** 1985. August.
**New Product–Documentation:** Interview with Jon Cloud. 1985. Aug. Talk with Lorraine Guardino of Soy City Foods. 1992. Feb. 18. The company still makes two types of tempeh.

1643. **Product Name:** Ice Cream Sandwiches [2 Flavors].
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2849 Dundas St. W., Toronto, ONT, M6P 1Y6, Canada.
**Date of Introduction:** 1985. August.
**How Stored:** Frozen.
**New Product–Documentation:** Interview with Jon Cloud. 1985. Aug. They make their own soy ice cream.

1644. Soy City Foods. 1985. I love Soy City's vac pac soy foods: Tofu, Soy Pro, tempeh (Bumper sticker). 2849 Dundas St. W., Toronto, ONT, M6P 1Y6, Canada. 15 x 35 cm.
• ***Summary:*** This bumper sticker is green, red, orange, and yellow on white. A heart stands in place of the word "love." Address: Ontario, Canada.

1645. *FDA Consumer.*1985. Warning on soy drinks. 19(7):34. Sept.
• ***Summary:*** "Edensoy and similar drinks should not be used as an infant formula or substitute for mother's milk or sole source of nutrition, FDA has warned. The warning came in June after the agency learned from a Canadian hospital physician of a 6-month-old infant who had rickets due to vitamin D deficiency, vision problems due to vitamin A deficiency, and general malnutrition. It was reported that the infant had been consuming Edensoy as the sole source of nourishment for five months after its mother experienced difficulty in breast feeding...

"A pamphlet and various advertisements and other promotional materials distributed by Eden Foods since 1983 have erroneously suggested that Edensoy may be used as a substitute for mother's milk or as a substitute for infant formula. The pamphlet also states that 'Edensoy compares very favorably with cow's milk.' This statement is false. Soy drink products such as Edensoy are nutritionally inferior to milk...

"FDA advised Eden Foods about the Canadian incident on June 14, and the firm has cooperated fully with the agency."

1646. Jackobs, Joseph A.; Smyth, C.A.; Erickson, D.R. 1985. International soybean variety experiment: Tenth report of results, 1983. *INTSOY Series* No. 28. xiv + 113 p. Sept. (College of Agric., Univ. of Illinois at Urbana-Champaign).
• ***Summary:*** In the ISVEX trials, soybeans were tested in the following regions and countries (For the year 1983): Algeria, Argentina, Bangladesh, Bolivia, Burma, Cameroon, Chile, Colombia, Costa Rica, Cuba, Dominica, Ecuador, Egypt, El Salvador, Gabon, Gambia, Ghana, Guatemala, Guinea-Bissau, Honduras, Indonesia, Korea, Laos, Madagascar, Mali, Mexico, Morocco, Nepal, Pakistan, Paraguay, Peru, Philippines, Portugal, Puerto Rico, Saint Lucia, Senegal, Somalia, South Africa, Sri Lanka, Sudan, Thailand, Turkey, United States, Upper Volta, Venezuela, Yugoslavia, Zaire, Zambia, Zimbabwe.

(For the year 1982): Brazil, Burma, Cuba, Italy, Peru, Turkey, Zaire.

In Dominica, on 19 Nov. 1983, with Plenty Canada serving as the cooperator, 16 varieties of soybeans were planted at the Royal Botanical Gardens, Roseau. Jupiter gave the highest yield, 676.8 kg/ha.

1647. **Product Name:** [3 Grain with Soy Tempeh (Soy & Barley & Millet & Brown Rice)].
**Manufacturer's Name:** Noble Bean.
**Manufacturer's Address:** R.R. 1, McDonalds Corners (near Elphin), Ontario K0G 1M0, Canada. Phone: 613-278-2305.
**Date of Introduction:** 1985. September.
**Ingredients:** Organically grown millet, barley, brown rice, soybeans, rhizopus culture, apple cider vinegar.

**Wt/Vol., Packaging, Price:** 227 gm.
**How Stored:** Frozen.
**New Product–Documentation:** Label. 1985, undated. 4.5 inches square. Brown on yellow. At bottom of front panel: "Culturing fine tempeh since 1979." On the back are three recipes in English: Honey Curry Bake, Indonesian Fried Tempeh, North Atlantic Tempeh; Letter from Allan Brown. 1985. Aug. 7. 8 oz for $1.65. Letter (fax) from Allan Brown. 1998. Jan. 21. This tempeh was first sold in Sept. 1985.

1648. **Product Name:** Tofu Dream (Soy Ice Cream) [Vanilla, Chocolate, Strawberry, Maple Walnut, or Coffee].
**Manufacturer's Name:** Tofu Treats Ltd. (Marketer). Made in Canada by St. Clair Ice Cream Co.
**Manufacturer's Address:** 36 Rosevear Ave., Toronto, ONT, Canada. Phone: 416-699-1141.
**Date of Introduction:** 1985. September.
**How Stored:** Frozen.
**New Product–Documentation:** AdNews (Toronto, ONT). 1985. Aug. 6. "The Latest in Yuppie Food." Canadian Jewish News (Toronto, Ontario). 1985. Sept. 12. The product was developed by Arthur Herhold, former general manager of Farm Foods.

1649. Kates, Joanne. 1985. Tofu for a small planet [Stephen Yu and Victor Foods in Toronto]. *Globe & Mail (Toronto, ONT, Canada).* Oct. 4.
• ***Summary:*** Stephen Yu grew up in Canton, then fled to Hong Kong in 1959 with his family when he was 12. In 1969 he went to Halifax, Nova Scotia, to help his older brother run a Chinese restaurant. He soon owned 2 restaurants in Halifax, then went to California to study engineering at Pasadena College. One day a visiting professor at his food science course lectured on soybeans, food of the future. Mr. Yu was fascinated. He learned to make tofu working for the largest tofu maker in Los Angeles. He sold his 2 restaurants and his house, took his life savings out of the bank, and opened Victor Foods in Scarborough in 1978. A big leap forward came in 1980, when he got his products into supermarkets. "But he never forgets his basic market. Tofu puffs (deep fried tofu) are made for Chinatown, even though nobody else wants them."

"Today Kathleen O'Bannon, his staff home economist, makes tofu chicken pie and tofu chicken salad. Neither has a hint of chicken, save the chicken stock used to marinate the tofu. Yet both, thanks to the stock, taste chicken-like."

Stephen Yu now makes 2 tons of tofu a day, and sells a million dollars worth of tofu a year. He is now introducing a new extra firm tofu called Hi-Pro. He dreams of tofu french fries, pudding, yogurt, and cereal, plus Tofu Cup-a-Soup.

A photo shows Stephen Yu. Address: Canada.

1650. *Plenty Canada News (Lanark, Ontario, Canada).*1985. African drought continues. Oct. p. 1.
• ***Summary:*** "For the first time in over 6 months, it rained in Lesotho last week (Oct. 15)." Lesotho has been suffering from drought for the past 5 years. "Plenty has been providing emergency food supplies to about 90 people a week, over half of them children, since last January. These supplies include cornmeal, peas, and soyfoods from Plenty's soy-dairy at the Village Technology Training Centre in the Quthing Valley." A photo shows a Plenty volunteer examining a malnourished child in Lesotho. Address: Plenty Canada, R.R. 3, Lanark, ON K0G 1K0, Canada.

1651. *Plenty Canada News (Lanark, Ontario, Canada).*1985. St. Lucia soy shop opens. Oct. p. 2.
• ***Summary:*** "Plenty's soy shop/training centre in Castries, on the Caribbean island of St. Lucia, opened in July [1985] and became a success almost overnight. The centre trains soy food technicians, develops recipes to fit traditional tastes, and wholesales soy products to retail soyfood outlets. It also provides a market for soybeans produced by local farmers.

"Products of the centre, such as tofu, accras (soy fritters), and soy flour, are rapidly gaining popularity in St. Lucia.

"The soy centre is part of an effort to introduce new sources of protein which are inexpensive and can be produced locally. At present St. Lucia imports most of its protein foods."

A photo shows trainee Glen Moses standing in front of a motorized mill, which is grinding soaked soybeans to make tofu. Address: Plenty Canada, R.R. 3, Lanark, ON K0G 1K0, Canada.

1652. Wenzel, John S. 1985. Re: Work with soy at Griffith Laboratories Ltd. in Canada and developing countries. Letter to William Shurtleff at Soyfoods Center, Nov. 22–in response to inquiry of Nov. 12. 1 p. Typed, with signature on letterhead.
• ***Summary:*** "You ask about my work with soya in Canada. Most of the work before retirement in 1982 from the Griffith Laboratories Ltd concerned: (1) Manufacture of textured soy protein and allied texturized products using soy and other protein materials; e.g. peas, meat, etc. (2) Investigation and manufacture of other products; e.g. soya concentrate, soya milk, spray dried full fat soya flour.

"Since July 1982 I have had a variety of consulting jobs with the Canadian International Development Agency and the Canadian Executive Service Organization on: (1) utilization of soybeans in Sri Lanka to make T.S.P. [textured soy protein] and full fat soya flour. (2) development of a T.S.P. industry in Thailand. (3) manufacture of soya milk in Sri Lanka."

"Over the years I have been interested in the utilization of soya in developing countries more from the standpoint of

industrial processing... but more on smaller scale processing which is where some of the countries must start.

"I do hope that our paths will cross in the future."
Address: J. Wenzel Food Technology Associates Inc., 14 MacDonnell St., Kingston, Ontario K7L 4B6, Canada. Phone: (613) 546-6826.

1653. **Product Name:** Grainwave Miso Mochi.
**Manufacturer's Name:** Grainwave.
**Manufacturer's Address:** 6726 West Coast Rd., Sooke, BC, V0S 1N0, Canada. Phone: 604-642-4424.
**Date of Introduction:** 1985. November.
**Ingredients:** Sweet brown rice, water, miso (soybeans, salt), sesame seeds.
**Wt/Vol., Packaging, Price:** 250 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 1985. 4 inches square. Self adhesive. Red and yellow on white. "Ready to eat in 5 minutes. Whole grain. Cut with sharp knife and broil, fry, or bake until golden."

1654. Wolfe, Bernard M.; Giovannetti, Patricia M. 1985. Elevation of VLDL-cholesterol during substitution of soy protein for animal protein in diets of hypercholesterolemic Canadians. *Nutrition Reports International* 32(5):1057-65. Nov. [30 ref]
Address: Depts. of Medicine and Home Economics (Brescia College) of the Univ. of Western Ontario, London, Ontario, Canada.

1655. Praskin, Laurie Sythe. 1985. The Farm soy history: An overview. Part I. Los Gatos, California. 10 p. Dec. 1. Unpublished manuscript. [Eng]
• ***Summary:*** "In 1971, a unique group of people settled in the Tennessee backwoods to live an alternative lifestyle, committed to living collectively off the land. The community of 200 people came to be known as The Farm and over the years grew to 1,500 residents, gaining international and domestic fame for its community ideals, lifestyle, alternative technologies, [midwifery], and vegetarian diet based on soybeans. Soy technologies practiced and developed on The Farm became the seed for many tofu and tempeh shops that sprang up around the world in the years that followed. Community members started the first [sic, sixth] commercial soy ice cream company, and the first soy 'deli.' Some went on to start several of the major tempeh shops across the United States and Canada and others helped start a network on international soy programs in underdeveloped countries. Innovative recipes developed by Farm members led to the publication of three cookbooks which have made a large contribution to the growing acceptance of soybeans and tofu in the American diet.

"When The Farm was first settled in 1971, most of the people were already vegetarians. There were a variety of reasons for their personal choices: (1) an unwillingness to kill in order to live (feelings which stemmed from religious beliefs similar to the Buddhist religion, as well as pacifist attitudes deepened during the Vietnam War); (2) a growing awareness that meat was too costly to produce and that if more people at lower on the food chain there would ultimately be more food to go around in the world; (3) evidence of the healthful benefits of a vegetarian diet; (4) a belief that the dairy industry practiced cruel and exploitive methods on animals and a reluctance to support that system.

After the community was established, the entire membership decided to adhere to a complete vegetarian [vegan] diet devoid of all animal products, including eggs and dairy. They wanted to create a self-sufficient community, eating primarily what they grew on the land. They also wanted to be an example of how people could eat foods lower on the food chain to help create a larger supply of food in the world. During the search for a nutritionally sound vegetarian diet, they settled on soybeans as the main form of vegetable protein, as soybeans have one of the highest and most complete protein contents and are more versatile than any other vegetable protein. Many of the members had already been eating tofu and other soy products before The Farm, but acquiring these foods in the middle of the Tennessee woods was not an easy job. Soybeans were readily available, as they were used as local cattle food, but the challenge was how to create healthy and appetizing foods from them. Besides the Asian population and some Seventh-day Adventists, there weren't many people in the U.S. at the time actually eating soybeans, let alone trying to use them as the main source of protein.

"There were not many physical resources available as the people arrived with few possessions, lived in buses and tents, and had little capital to work with (a typical Third World situation). Some people owned Corona hand mills and occasionally ground soybeans to make fresh milk or tofu, using the recipe in the Seventh Day Adventist's Ten Talents cookbook. Fearn Instant Soya Powder was purchased and used for making soymilk, tofu, yogurt, and 'soy butter'. Just a few families owned pressure cookers so people cooked large communal pots of soybeans, taking turns 'watching the pot,' since they boiled them for 16 to 20 hours, to be sure they were digestible.

"By 1972 the Farm had its own flour mill that ground soybeans into full-fat soy flour and soy grits. The community was then able to make fresher soymilk, and tofu, as well as add soy flour to baked goods for added protein. They developed a curded soy flour base that was spiced and used as a sandwich spread, and they also baked soy flour 'souffle.'

"During these early days while the diet was still being worked out, the young children were given eggs for their

protein source. Margaret Nofziger, the Farm's dietician, wanted to provide the babies and young children with a soy formula as a weaning food. She asked Alexander Lyon, a Farm member with a Ph.D. in microbiology, to research how the community could make the formula. He began an extensive research both in libraries and through correspondence. Fortunately, there were studies available about the uses of soy for human food consumption. Alexander, (Dr. Lyon) contacted Dr. Hesseltine and Dr. Wang of the Northern Regional Research Center in Peoria, Illinois, and Dr. Steinkraus of Cornell University in New York. These researchers provided a treasure of information to Dr. Lyon and to the soy technicians that followed. Other scientists who should be credited for their early and helpful research are Dr. Harry Miller with Loma Linda Foods and Malcolm Bourne with Cornell University.

"All of the information gathered by Dr. Lyon led to the start of the Farm Soy Dairy in 1972. After learning the basic processes involved in soy milk preparation, Alexander began collecting used equipment that could be adapted for the use of making soymilk. The original soy dairy was very small, with a production capacity of 20 gallons of soymilk a day, and expanded over the years as the soy technicians were able to find and add new equipment to their dairy. This dairy became a cross between a Japanese tofu shop and American ingenuity. The Farm Soy Dairy had no capital to start operations and no investors beside the Farm itself. Cash was hard to come by and as with all other commodities on the Farm, the products were distributed freely to community members. For these reasons, the soy technicians had to be creative and imaginative in how they obtained equipment and how they adapted such equipment to their needs. Over the years, they went to auctions, scrap metal yards and used restaurant equipment houses. They bought, bartered and traded for their equipment. They designed their own systems in their welding shop and then re-designed them to make improvements and to increase production. They became a school, learning as they went along. In 1975, Laurie Sythe Praskin, one of the early workers in soy dairy, succeeded Dr. Lyon in managing the operation. Over the next 4 years, with David Handel and Michael Halpin as equipment developers, weekly production increased to 800 gallons of soymilk, 600 lbs. of tofu, 80 gallons of soy yogurt, and a varied amount of soy ice cream." Continued. Address: 17969 Oak Dr., Los Gatos, California 95030.

1656. Praskin, Laurie Sythe. 1985. The Farm soy history: An overview. Document part II. Los Gatos, California. 10 p. Dec. 1. Unpublished manuscript. [Eng]

• ***Summary:*** Continued: In 1975, Farm members started a company to promote the use of soybean products in the America diet. The company, named simply Farm Foods [Farm Food Company], began sales on the East Coast with full-fat soy flour (ground fresh on The Farm), TVP (texturized vegetable protein), Good Tasting Nutritional Yeast, split soybeans, and Tempeh Starter Kits (developed by Cynthia Bates and Dr. Lyon). In 1976, under the management of Leticia Coate and Robert Tepper, Farm Foods began participating in national health food trade shows. At the time, they were one of the only companies representing soyfoods. Along with their packaged products, they sold cookbooks and served free samples of tempeh, TVP chili, and nutritional yeast crackers.

"The products and recipes developed over the years led to the publication of three cookbooks: *The Farm Vegetarian Cookbook* (1975) and *Tofu Cookery* (Oct. 1982), edited by Louise Hagler, and *Tempeh Cookery* (March 1984), edited by Colleen Pride. These books made a major contribution in westernizing recipes previously Oriental in origin. They were available in all natural food stores throughout the country.

"The work with soy products on The Farm also inspired members to start two vegetarian restaurants; the Farm Foods Cafe [opened Aug. 1976], in San Rafael, California, managed by Robert Dolgin, was the first "soy deli" in the United States. Everybody's, located in Nashville, Tennessee [opened July 1980], was managed by Judd and Diane Hoffman.

"The acceptance by the public of Farm Foods Cafe was overwhelming, and although it only operated from 1976 to 1977, it pioneered the path for many tofu delis that have followed since. The unique characteristic of this deli was the tofu and tempeh shop producing fresh products located in the rear of the store. The Farm Foods Cafe also became the first [sic] company to market a non-dairy ice cream made from soybeans. This frozen dessert, marketed under the name of 'Farm Foods Ice Bean,' is still being sold in health food stores nationwide.

"In 1977-78, The Farm Foods Cafe closed, and the soy processing equipment was moved to San Francisco. Farm Food Company began wholesaling soy products throughout California under the management of Robert Tepper. They continued marketing Farm Foods Ice Bean, and added tofu salad [like eggless egg salad], 'tofu cheesecake,' a frozen soy yogurt dessert, and the first firm-pressed tofu to hit the California market. In 1980 it was decided to drop the perishable tofu business and concentrate on the nationwide distribution of Farm Foods Ice Bean. The plant in San Francisco was closed, and large scale production began in a Memphis, Tennessee, dairy and ice cream factory. This new location gave the company easier access to East Coast distributors, and they soon established additional warehouses in Connecticut and California.

By 1984, under the management of Ron Maxin and Michael Lee, the weekly production of The Farm Soy Dairy [in Summertown, Tennessee] was 1,000 lb of tofu, 150 gallons of soymilk, 20 gallons of soy yogurt, 20 gallons of

soy ice cream, 400 ice cream sandwiches, and 90 lb of tempeh. Today, the Soy Dairy produces an average of 5,000 gallons of soymilk a month for Farm Foods to use in Ice Bean production. The soymilk is shipped by tanker truck to the Ice Bean production plant [in Memphis], and the Farm Soy Dairy also markets its products in Nashville and Columbia, Tennessee.

"The Farm's uniquely controlled vegetarian diet led to two official studies of its effect on the children. In 1979, Dr. Jeffrey Hergenrather, et al., conducted a study on the pesticide levels in the breast milk of vegetarian nursing mothers on the Farm. He submitted a letter of his findings to the editor of the *New England Journal of Medicine*, March 26, 1981. His letter challenged a previous article written by Rogan, et al, (New England Journal of Med. 1980) which stated that 'there are no obvious dietary predictors' of chemical pollutant in human milk. Rogan went on to say 'For certain fat-soluble chemicals, nursing infants can be regarded as living at the top of the food chain and are exposed to much more than background levels.' Dr. Hergenrather's study included 12 women whose breast milk was analyzed for 17 chemical substances. When compared to the seven contaminants studied by Rogan, in all but one of the contaminants, which showed no difference in contaminant levels, the milk of the vegetarian women had lower levels of contamination.

"The second study was conducted by Jean Roberts Fulton in 1980 and was published in the *Journal of the American Dietetic Association.* She studied a group of the Farm nursery school children and found their amino acid and iron intake to be adequate. (The diet was low on calories, however.)

"The innovative methods used by the Farm soy technologists inspired many groups and individuals to start all over the world to train in the Farm Soy Dairy, and many who couldn't come personally were encouraged through correspondence. In 1977, Plenty, the non profit relief organization founded by the Farm, established an international training program whereby people from other countries could come and train in soybean processes and other technologies that The Farm had to offer. The Farm Soy Dairy received its first trainees from Guatemala and Mozambique.

"From the beginning days of the Farm Soy Dairy, the technicians realized the value that soybeans could have in Third World countries. Eventually they were able to share their knowledge and training in the field of soybeans by starting a dairy in an impoverished country. In 1979, Plenty Canada and Plenty USA sent Farm Soy Dairy technicians Laurie Sythe Praskin, Suzy Viavant and Richard Decker to Guatemala to help establish Plenty's first international soy dairy/tofu shop. Other technicians who trained on the Farm have gone on to help start soy programs with Plenty Canada in Lesotho (in Southern Africa, 1979-present), Jamaica (1983-present), St. Lucia (1983-present), and Dominica (1984-present).

"Many of the people who lived on The Farm and trained in the Soy Dairy or with Farm Foods have started their own soy companies or are working in underdeveloped countries. The common goal felt by all has been to provide healthful, delicious foods for all people, rich and poor alike. Because soybean products can be presented as gourmet dishes, yet can also be prepared very simply, they continue to be accepted by all classes of people." Continued. Address: 17969 Oak Dr., Los Gatos, California 95030.

1657. Loeks, David. 1985. Yukon New Crop Development Project: Report of the 1985 field season. Prepared for: Agriculture Canada, Government of Yukon, Yukon Livestock and Agricultural Assoc. 57 p. See p. 4, 26, 37-39. Dec. 12. Illust. 28 cm.

• ***Summary:*** First some background. The Yukon Territory was established in 1898. The gold rush of the 1890s first brought fame and 100,000 fortune hunters to the area.

In April 1985 C.A.S. Smith and R.H. Filteau, both of Whitehorse, Yukon, wrote a report titled "Yukon Agriculture 1984: State of the Industry" (46 p.). They noted: "On June 10, 1975 the minister of the Department of Indian affairs and Northern Development (DIAND) decreed a moratorium on the development of agricultural lands in the Yukon and Northwest Territories. The ostensible purpose of the moratorium was to allow time for resource inventories to be undertaken to prevent land use conflicts or inappropriate use of northern lands."

Then in 1983 a report by Hoyt, completed under contract for DIAND, recommended land transfers to facilitate the development of the agricultural industry in areas presently under federal control. The years 1983 and 1984 saw intense interest in Yukon agriculture. For the first time in 10 years, acquiring agricultural land became a realistic possibility. At the beginning of 1985 Yukon agriculture had reached a watershed. Major changes would follow the block land transfers. For the first time in nearly 100 years substantial quantities of agricultural land would be brought into agricultural production in Yukon.

In 1983, Mr. Dick Filteau, an experienced agronomist, came to Yukon to serve as Agricultural Development Advisor (ADA) to the Government of Yukon. 1985 was the first year of a three-year research effort, the Yukon New Crop Development Project, in which results were obtained. The effort was funded by Agriculture Canada and the Government of Yukon, and sponsored by the Yukon Livestock and Agricultural Association.

Filteau tested two varieties of soybeans (Maple Presto and Maple Ridge) for demonstration only at the following test sites: Sunnydale (near Dawson City), Stewart Crossing, Pelly Farm, Firth Farms (near Whitehorse), and Minto Bridge (near Mayo). A map shows the location of each site.

They are situated between 61º and 64º north latitude. The results were as follows: "In no site did these varieties of soybeans produce significant pods; in most sites they struggled with poor germination rate and tiny plants; and in one site they did not even appear. At Pelly Farm immature pods were produced, but they were badly frost damaged and withered. At Firth's, the plants were dead at 3 inches high."

Note: This is the earliest document seen (Jan. 2010) concerning soybeans in the Yukon Territory, Canada, or the cultivation of soybeans in the Yukon Territory. This document contains the earliest date seen for soybeans in the Yukon Territory, or the cultivation of soybeans in the Yukon Territory (1985). The source of these soybeans was Joe Tsukamoto at Brandon, Manitoba. After 1985 no soybeans were grown in the Yukon. For more details, see 1991 interviews with Joe Tsukamoto, and with Dick Filteau. Address: Project Manager, Whitehorse, Yukon.

1658. **Product Name:** [Tofu].
**Foreign Name:** Queso de Soya.
**Manufacturer's Name:** Centro de Soya, Soy Dairy.
**Manufacturer's Address:** Barrio San Bartolo, Molino Belen, Solola, Guatemala; Apartado Postal 118, 07091 Solola.
**Date of Introduction:** 1985.
**Ingredients:** Water, soybeans, coagulant (Epsom salts).
**Wt/Vol., Packaging, Price:** 1 lb blocks packed in plastic bags, sold at Q. 1.50 per pound.
**How Stored:** Refrigerated.
**Nutrition:** Moisture 79.7%. After drying: moisture 4.5%, ether extract (fat) 30.4%, crude fiber 0.12%, nitrogen 9.0%, protein 56.2%, ash 3.7%.
**New Product–Documentation:** Talk with Laurie Praskin. 1988. Dec. Most of this tofu is sold to vegetarian restaurants that cater to tourists in Panajachel, Guatemala City (Seventh-day Adventist), and Antigua (a big tourist center and the former capital of Guatemala). Letter from Amado del Valle. 1988. March 16. San Bartolo is the name of the indigenous community situated around the Center. It is comprised of 60 houses with 60 independent families. This community has benefited from the potable water project and system and the Centro de Soya through the help of Plenty Canada. Plenty's original idea was for the soy dairy to benefit the community. The community presently buys products from the soy dairy at reduced prices to stimulate production and improve their nutritional status. The Center also gives the community classes on the benefits of soybeans. Q. refers to Guatemala's monetary unit, the Quetzal. The Center does not yet have any commercial labels or legal receipts since it is not yet registered as a commercial enterprise under Guatemalan law.

1659. Masson, A. 1985. Le contrôle microbiologique des aliments dans la province de Québec: Compte-Rendu d'un stage effectué au Canada du 3 au 21 Juin 1985 [Microbiological control of food in the province of Quebec: Report of a study conducted in Canada from June 3-21, 1985]. *Swiss Food* 7(11):7-11. [Fre]*
• ***Summary:*** Contains results of microbiological analyses of soymilk, with or without magnesium chloride added, and of tofu. Identification of the pathogenic bacteria in the finished products and raw materials. Gives Canadian norms or standards on the microbiological quality of food products. Address: Univ. Lausanne, Lab. Cantonal, Controle Denrees Alimentaires, Epalinges, Switzerland.

1660. Soldati, A. 1985. Report 1983-84 of the "Working Group for the Promotion of Soybeans in Northern Europe and Canada." *Eurosoya* No. 3. p. 86-87.
Address: Swiss Federal Inst. of Technology (ETH), Crop Science Dep., CH-8307 Eschikon-Lindau, Switzerland.

1661. **Product Name:** Soya Nova Herb & Garlic Tofu.
**Manufacturer's Name:** Soya Nova Tofu Shop.
**Manufacturer's Address:** R.R. #2 Rourke Road, C.28, Ganges, Saltspring Island, BC, V0S 1E0, Canada. Phone: 604-537-9651.
**Date of Introduction:** 1985.
**Ingredients:** Incl. tofu, garlic, herbs.
**How Stored:** Refrigerated.
**New Product–Documentation:** Letter from Greg Lundh of Silverking Soya Foods in Nelson, BC, Canada. 1990. Dec. 14. Soya Nova Tofu Shop introduced Herb & Garlic Tofu in 1985.

1662. **Product Name:** Soya Nova Tofu.
**Manufacturer's Name:** Soya Nova Tofu Shop.
**Manufacturer's Address:** R.R. #2 Rourke Road, C-28, Ganges, Saltspring Island, BC, V0S 1E0, Canada. Phone: 604-537-9651.
**Date of Introduction:** 1985.
**New Product–Documentation:** Two early entries in the Soyfoods Center NAMES database: (1) Chris Kodaly, R.R. #1, Mayne, BC, V0N 2U0, Canada. for Debbie Lauzon and Chris Kodaly. 1987. June 4. Nova Food at R.R. #1, Isabella Point Rd., Fulford Harbour, Saltspring Island, BC, V0S 1C0, Canada, is making tofu. Phone: 604-653-9259.

Talk with Greg Lundh of Silverking Soya Foods in Nelson, BC, Canada. 1990. Oct. 20. Soya Nova Tofu Shop makes tofu at R.R. #2 Rourke Rd., C-28, Ganges, Saltspring Island, British Columbia, V0S 1E0, Canada. Phone: 604-537-9651. The owners are Chris and Debbie Kodaly. Saltspring is one of the "Gulf Islands" in the Straight of Georgia between Vancouver Island and southern southwest tip of the mainland of BC. They have been in business for 5-7 years. They started the business themselves and they have been in the same location for at least the last 5 years. They make tofu, herb tofu, and many other soyfood products.

They label their products. They make 700 lb/week of tofu (plain and herb), plus soysage, soysage pastries (made by a French pastry chef).

Letter from Deborah Lauzon. 1991. Feb. 6. They moved to Ganges in 1985.

Talk with Silverking. 1992. Sept. They have a new Takai pressure cooker and boiler. They used to make 900 to 1,000 lb/week of tofu, but now they hope to make that much in one day.

1663. **Product Name:** [Tofu Dessert].
**Foreign Name:** Tofu Dessert.
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada.
**Date of Introduction:** 1985.
**Ingredients:** Water, soybeans, sugar, calcium sulphate, glucono-delta-lactone.
**Wt/Vol., Packaging, Price:** 10 oz (300 gm).
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 5.5 by 3.5 inches. Red and white with color photo in middle of yogurt-like tofu surrounded by fruits (kiwi, strawberry, peaches) in a glass cup. "Pasteurized. No preservative." Product name also written in Chinese. Form filled out by Peter Joe. 1988. May 20. Gives date.

1664. **Product Name:** [Tofu Puffs].
**Foreign Name:** Souffles de Tofu.
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada. Phone: 604-254-0701.
**Date of Introduction:** 1985.
**Ingredients:** Water, extract of soy, magnesium chloride, vegetable oil (canola and soybean). vegetable oil.
**Wt/Vol., Packaging, Price:** 95 gm (3.25 oz).
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 1987. 4 x 3 inches. Red and black on yellow. "Fully cooked. Keep refrigerated. Heat and serve." Form filled out by Peter Joe. 1988. May 20. Gives date.

1665. **Product Name:** Victolec Lecithin.
**Manufacturer's Name:** Victory Soya Mills Ltd. Div. of Central Soya Co., Inc.
**Manufacturer's Address:** 333 Lake Shore Blvd. East, Toronto, ONT, M5A 1C2, Canada.
**Date of Introduction:** 1985.
**New Product–Documentation:** Soya Bluebook. 1985. p. 77.

1666. Delisle, Jocelyne; Amiot, J.; Goulet, G.; Brisson, G.J.; Jones, J.D. 1985. Nutritive value of soybean, rapeseed, and wheat proteins, and various blends of these vegetable proteins and their fractions in rats. *Qualitas Plantarum–Plant Foods for Human Nutrition* 35(2):131-37. [20 ref]
• ***Summary:*** By blending vegetable proteins with other vegetable proteins, it is possible to obtain food proteins of higher nutritional value. The fraction 7S extracted from soybean protein and the fraction gliadin extracted from wheat protein have been showed to have very low nutritional value. Two of the major wheat fractions are wheat albumin-globulin (AG) and glutenin (G). Address: 1-3 Centre de Recherche en Nutrition, Universite Laval, Quebec, Canada G1K 7P4; 4. Food Research Inst., Agriculture Canada, Ottawa, ONT, Canada K1A 06C.

1667. Hamilton, R.I. 1985. Soybean bud blight: Seed transmission of the causal virus. In: R. Shibles, ed. 1985. World Soybean Research Conference III: Proceedings. Boulder, Colorado: Westview Press. xxiii + 1262 p. See p. 515-22. [33 ref]
• ***Summary:*** Contents: Introduction. Seed transmission of plant viruses: Basic aspects, seed transmission of TRSV in soybean. Re-examination of the process of seed transmission: Incorporation of viral RNA in the plant genome, viral replicative RNA, protected viral ss-RNA. Concluding remarks.

Bud blight of soybean, as a symptom, can be induced by at least 4 viruses. Tobacco ringspot virus (TRSV) is the most common incitant. The disease was first reported in Indiana, USA, in 1941 by Samson, who established TRSV as the causal virus. Address: Agriculture Canada Research Station, 6660 N.W. Marine Dr., Vancouver [BC], Canada V6T 1X2.

1668. Horrocks, Lloyd A.; Kanfer, Julian N.; Porcellati, Giuseppe. eds. 1985. Phospholipids in the nervous system. Vol. II. Physiological roles. New York, NY: Raven Press. 358 p.
• ***Summary:*** Discusses the physiological roles of lecithin. Address: 1. Dep. of Physiological Chemistry, College of Medicine, Ohio State Univ., Columbus, Ohio; 2. Dep. of Biochemistry, Univ. of Manitoba Medical School, Winnipeg, Manitoba, Canada; 3. Istituto di Biochimica, Universitá di Perugia Policlinico, Perugia, Italy.

1669. Hume, D.J.; Shanmugasundaram, S.; Beversdorf, W.D. 1985. Soyabean *(Glycine max* (L.) Merrill). In: R.J. Summerfield and E.H. Roberts, eds. 1985. Grain Legume Crops. London: Collins. xvi + 859 p. See p. 391-432. Illust. Index. 24 cm. [192 ref]
• ***Summary:*** Contents: Introduction: History, current status and future projections. Principal economic yield and uses of crop products. Principal farming systems. Botanical and agronomic features: Symbiotic nitrogen fixation potential. Principal limitations to production and yield: Developing countries, developed countries. Fertiliser requirements.

Quality of seed constituents. Germplasm resources. Principal breeding strategies: Adaptation to new geographic areas, breeding methodology, breeding objectives, seed quality, pest and disease tolerances, current trends in soyabean breeding. Avenues of communication among researchers (INTSOY, AVDRC, IITA, FAO). Prospects for larger and more stable yields.

Tables: (1) Area (1000 ha), yield (kg per ha), and production (1000 tonnes) of soyabeans from 1969-71 to 1982. (2) Maturity durations and productivity potentials of soyabeans in selected countries. (3) *Glycine* species collections around the world. (4) Sources of resistance among soyabeans to selected insect pests. (5) Sources of resistance among soyabeans to selected diseases.

Table 9 shows that there are soybean germplasm collections in 15 countries. This table has 4 columns: Country, location (city), curator, and no of accessions. AVRDC in Taiwan has the largest germplasm collection in one location (10,400 accessions, Tainan), followed by USA (9,648, Illinois and Mississippi), India (4,000, Pantnagar; 1,800 Amravati), Japan (3,541, Tsukuba; 200, Morioka), USSR (3,000, Leningrad), China (3,000 Jilin; 3,000 Hubei; 2,930 Shadong [sic, Shandong {W.-G. Shantung}]; 2,500 Beijing; 960 Heilungjiang [Heilongjiang]). Also: Australia 400, France 500, Nigeria 1,300, Indonesia 600, South Korea 2,833, North Korea 300, South Africa 600, Sweden 1,200, and Thailand 1,686. Address: 1&3. Univ. of Guelph, Dep. of Crop Science, Guelph, Ontario N1G 2W1, Canada; 2. Asian Vegetable Research and Development Centre (AVRDC), PO Box 42, Shanhua, Tainan 741, Taiwan, Republic of China;.

1670. Juvik, Gail A.; Bernard, R.L.; Kauffman, H.E. 1985. Directory of germplasm collections. 1. II. Food legumes (Soyabean). Rome, Italy: International Board for Plant Genetic Resources. 53 p. Co-sponsored by INTSOY. [11 ref]

• ***Summary:*** Soybean germplasm collections worldwide are listed (with address and number of accessions) in the following countries: Argentina, Australia, Austria, Bangladesh, Bolivia, Brazil (2 collections), Bulgaria, Canada, China (14 collections), Taiwan (3), Colombia, Czechoslovakia (2), France (4), Germany (East), Germany (West), Greece, Hungary (2), India (8), Indonesia (3), Italy, Japan (5), Korea (South, 2), Malaysia, Nepal, Nigeria, Papua New Guinea, Paraguay, Philippines, Poland, Portugal, Romania, Spain, Sri Lanka, Thailand (2), Turkey, USSR, United Kingdom, USA (5), Uruguay, Venezuela, Vietnam (2), Yugoslavia, Zambia, Zimbabwe.

The world's largest soybean germplasm collections are as follows: AVRDC, Tainan, Taiwan (12,200 accessions), National Seed Storage Laboratory (NSSL), Fort Collins, Colorado, USA (10,880), Univ. of Illinois, Urbana, IL, USA (8,368), Jilin Academy of Agricultural Sciences, Jilin, China (4,800), N.I. Vavilov All-Union Institute of Plant Industry (VIR), Leningrad, Moscow (4,700), All-India Coordinated Research Project on Soybean, G.B. Pant Univ. of Agriculture and Technology, Pantnagar, India (4,022), Suweon, South Korea (4,020), Tsukuba, Japan (3,741). USDA, Stoneville, Mississippi, USA (3,000).

A world map (p. 9-10) shows (1) The sites of all soybean germplasm collections, (2) the range of ancient cultivation of the soyabean (East and Southeast Asia), (3) range of the wild soybean (Glycine soja; in China and Japan), and (4) range of perennial Glycine (Australia, Papua New Guinea, Philippines, Taiwan, Melanesia, and Micronesia).

This document is "Available free to developing countries, but restricted distribution to developed countries." Address: 1&3. INTSOY, Univ. of Illinois at Urbana-Champaign; 2. USDA-ARS, Dep. of Agronomy.

1671. Ontario Soya-Bean Growers' Marketing Board. 1985. Soybeans: Nature's miracle–teaching unit. Chatham, Ontario, Canada: OSGMB. 33 p. Undated. 28 cm.

• ***Summary:*** This interesting portfolio of materials is designed to teach children in Ontario, Canada, about the growth development of a soybean from seed to mature plant, soybean cultivation, soybean processing and products, the importance of soybeans to Ontario's economy, and the Ontario Soya-Bean Growers' Marketing Board.

Contents: Introduction to teacher's unit. 1. From seed to pod: A brief history of soybeans in Canada, biology of the soybean seed, its germination and seedling growth, soybean nodules and rhizobia bacteria, parts of a young soybean plant, reproductive stages from flowering to maturity, corn heat units, tillage, word scramble.

2. Soybeans–Nature's miracle: A brief history of soybean utilization, ways that soybeans are used, soy oil, meal and soyfoods, recipes, word search. 3. Imports and exports: Importance of soybeans to the economy of Canada and Ontario, how soybeans get to market, The Ontario Soya-Bean Growers' Marketing Board.

A table on page 20 shows "Soymeal consumption by Ontario's livestock and poultry." Hogs consume 45% of the total (the total is 503,000 tonnes), poultry 34%, dairy cattle 20%, and beef cattle 1%. Page 22 notes that the bulk of Ontario's soybean exports (77%) are sold to East Asia–especially Japan, Hong Kong, Singapore, Malaysia, Indonesia, and Korea. Soyfoods are listed and discussed in a positive way, with recipes for: Bran muffins (with soy flour and soy oil). Tofamole (tofu guacamole). Tofu fruit pudding. Tofu shake.

Note: This is the earliest English-language document seen (Dec. 2003) that contains the term "Tofu shake."

The three largest farm crops in Ontario in terms of total area are hay (1,050,000 ha), grain corn (902,000 ha), and soybeans (425,000 ha). Address: Chatham, ONT, Canada.

1672. Shurtleff, William; Aoyagi, Akiko. 1985. When major soybean producing nations reached "takeoff" of 10,000 metric tons (Document part). In: Shurtleff and Aoyagi. 1985. Soyfoods Industry and Market: Directory and Databook. 5th ed. Lafayette, CA: Soyfoods Center. 202 p. See p. 168.
• ***Summary:*** Pre-1850 China proper, Manchuria, Korea, Japan, Taiwan, Indonesia. 1912 United States. 1925 USSR. 1942 Canada. 1946 Brazil, Thailand. 1955 Nigeria. 1956 Colombia. 1958 Vietnam (North and South combined). 1959 Yugoslavia. 1961 Argentina. 1962 Mexico. 1963 Paraguay. 1966 Romania. 1968 India. 1969 Turkey. 1971 Bulgaria. 1972 Iran, Nepal, Australia. 1974 South Africa, Hungary, Burma. 1975 Uruguay, Bolivia, Zimbabwe. 1976 Egypt. 1979 France. 1980 Philippines. Address: Lafayette, California. Phone: 415-283-2991.

1673. **Product Name:** Tom Soya Foods Tofu.
**Manufacturer's Name:** Tom Soya Enterprises (Marketer). Made in Canada by Victor Food Products.
**Manufacturer's Address:** Toronto, ONT, Canada.
**Date of Introduction:** 1985?
**Ingredients:** Water, soya beans, calcium sulfate.
**Wt/Vol., Packaging, Price:** 500 gm packed in water in molded plastic tray with heat-sealed, peel-off plastic film lid.
**How Stored:** Refrigerated.
**New Product–Documentation:** Label sent by Kathleen O'Bannon. 1989. March. Undated. 5 by 4.25 inches. Dark blue, light blue, orange, yellow, and white. Printed on film. Written in French and English. "Fresh soya bean curd. Cailles frais aux feves de soya." An illustration shows a smiling boy resembling Tom Sawyer walking with a straw hat, fishing pole over his shoulder, and rolled up, suspendered jeans.

Letter from Kathleen O'Bannon Baldinger. 1990. March 25. This company was started by Rabbi David Dreben, who was the principal of a Hebrew school in a northern suburb of Toronto. He had the Victor Food Products plant certified to use COR 77 on those products that VFP produced for him. "He marketed his tofu himself, mostly in small stores in the Jewish area of Toronto and in the northern suburbs. He did many cooking demonstrations at various meetings and clubs, encouraging people to use tofu in their kosher cooking. He sold a small quantity compared to the total output of VFP. He died prior to June 1986, possibly during 1985."

1674. Plenty Canada. 1986. The Soya Centre (Calendar). Castries, St. Lucia.
• ***Summary:*** This is the head of a calendar, 8½ by 11 inches. On the top three-fourths of the page is a large black-and-white photo of the Soya Centre, looking from the outside in through two open doors–on each of which is written "Soya Beans" in large diagonal letters, above an illustration of a soya bean plant. Inside are about 10 local black people. On the back right is a food retail counter and snack bar, staffed by several women. On the back wall is a blackboard with a price list and menu written on it in chalk.

On the bottom quarter, in large black letters is written "The Soya Centre" in an arch. A laughing Santa Claus on the left is holding the word "The." Below the arch is written the Center's address: "19 Grass St., Castries, St. Lucia. Tel: 26421." To the right of the arch is a line drawing of a dove, and below it: "With the Compliments of Plenty Canada and the Staff of the Soya Centre." The calendar itself is missing.

Talk with Maya Clarke of Ontario, Canada. 1998. June 25. Maya worked for 7 years as a nutritionist and soyfoods instructor/technician for Plenty Canada at this Soya Centre in St. Lucia. She remembers this calendar well but does not have a copy. "There could possibly be one in the Plenty archives" at Lanark, but she is not too sure. Plenty made a calendar like this for two years, and this was the first of the two. It was designed by Plenty and printed in Castries (the capital city, by the person who prints *The Voice* newspaper) in December 1985 and presented on 1 Jan. 1986 as a New Year's gift to the Center's popular customers and friends. The calendar had a photograph as the head, then one page for each month below. The soya bean plants on the two big doors were painted by a Rastafarian man named Papa. Many of the people shown in the picture, the same as those who came to the Centre, were Rastafarians, who are vegetarians (very important) and consider themselves members of the lost tribe of Israel. They esteem Marcus Garvey, who they consider one of their forerunners. Note: *Webster's Dictionary* (1985) defines Rastafarian (derived from *Ras Tafari*, the precoronation name of Haile Selassie), a word first used in 1955, as "an adherent of Rastafarianism." The latter word, first used in 1968, is defined as "a religious cult among black Jamaicans that teaches the eventual redemption of blacks and their return to Africa, employs ritualistic use of marijuana, forbids the cutting of hair [it is worn in long braids called dreadlocks (first used in 1960)], and venerates Haile Selassie as a god."

The Soya Centre, which was constructed specifically for this purpose by the team just before Maya (John Baranni and Christine Kilgour from Plenty with local labor), was located in the middle of a black ghetto in Castries, and there were lots of social problems in the area. In the back of the Centre was a soyfoods factory. The factory was used to train all the people who subsequently opened up soyfoods businesses in St. Lucia. "What went on with soyfoods in St. Lucia was very significant–much more so than what happened in Jamaica, etc. At any given time, up to ten local people worked (for pay) at the Centre. The Centre was self-sufficient, so the money from the foods they sold went to pay the workers. Two guys would start very early in the

morning (about 4:00 a.m.) to make soymilk and tofu. Then a crew of ladies would come in about 7:00 a.m. and use the tofu and soymilk to make second generation products from soymilk, tofu, and okara–such as "bakes" (like a little doughnut) and "accras" (like a fritter, in which the traditional salt cod was replaced by okara). The use of okara made the products more affordable. Tempeh was made at time, but it did not catch on as well as tofu and soymilk, and it was somewhat hard to get the spores. "Tofu caught on almost immediately "The local people just took it up; they just seemed to know what to do with it." Soymilk ice cream was one of the most popular products. Soymilk, imported soy flour, and okara were use to make little breads. Many people would bike or walk to the Centre to buy tofu in bulk over the counter–which was also a snack bar. The Centre was both a business and an education/training center. Many local Seventh-day Adventists came to cooking classes at the center, and Maya also taught classes in their churches, schools, and homes. Maya remembers that one day a 13-year-old kid named Sooner knocked on the door of the Center at 7 o'clock in the morning and said to her: "I want to know everything there is about soyfoods." She happily invited him in, and began to teach him. For a while there was a "Comments Book" at the Centre; in it people wrote soy poems and soy songs–some of which Maya still has.

At one time some 10-12 soyfoods businesses were started in St. Lucia by local people who had first trained at Plenty Canada's Soya Centre. About 6 of those businesses are still in operation. A good example is La Soyarie. The reasons the others did not survive had nothing to do with local acceptance of soyfoods; they failed largely for reasons related to money or business management skills.

St. Lucia is a very small (27 miles long) independent country; It was granted self-government by the British in 1967 and attained independence on 22 Feb. 1979. The population is about 160,000 (1998). About 90% of the population is of African descent, with a small minority of Europeans and a few Carib Indians. Bananas are the chief crop. The official language is English, but Creole is the language most widely spoken. It is largely an oral culture.

Note: This is the earliest calendar seen (Oct. 2001) that mentions soy. Address: 19 Grass St., Castries, St. Lucia. Phone: 26421.

1675. *Toronto Star (Ontario, Canada).*1986. Tempeh new to Toronto. Feb. 6. p. F5.
• ***Summary:*** "Soy based foods are available at more and more restaurants, specialty stores, and supermarkets, in response to a growing demand for lighter and meatless protein foods. For example, there has been a rapid rise in the popularity of tofu (soybean curd) and tofu based products.

"Once only for 'those who dare,' tofu is now available in all major supermarkets and in many major restaurants in Toronto.

"Moving quickly on the heels of tofu is tempeh, and Indonesian culinary delight."

Two varieties of tempeh (traditional soy tempeh and a lighter grain tempeh) is now being made by Soy City Foods in Toronto. They are served at: (1) Vegetarian Restaurant, 542 Yonge St.; (2) West End Vegetarian Restaurant, 2849 Dundas St. West.

Gives a recipe for Barbecued tempeh.

1676. deMan, J.M. 1986. The growing importance of plant proteins in food. *Notes on Agriculture (Guelph, Ontario)* 20(1):13-14. Feb.
• ***Summary:*** "If we look at the list of promising candidates for new foods of the future, soybean appear to be the best answer... Soy proteins are already widely used as food ingredients, e.g. in bread, and it appears certain that slowly but surely plant proteins will continue to play an increased role in the food supply." Soybeans and soy flour are among the least expensive sources of protein, and an acre of land can produce more protein from soybeans than from any other conventional farm crop. Table 3 shows the price of a kilogram of protein from various sources in 1984 in Guelph, Canada: Soybeans $1.11. Wheat $2.14. Bread $17.00. Milk $17.14. Ground beef $24.66. Tofu $25.00. Cheese $40.00. Yoghurt (dairy) $62.56. Sirloin steak $74.06. Address: Dep. of Food Science, Ontario Agricultural College, Univ. of Guelph, ONT, Canada.

1677. **Product Name:** Super Soy Drink (Organic Non Dairy Beverage).
**Manufacturer's Name:** Sooke Soy Foods Ltd.
**Manufacturer's Address:** 2625 Otter Point Rd., R.R. 2, Sooke, Vancouver Island, BC, V0S 1N0, Canada. Phone: 642-3263.
**Date of Introduction:** 1986. February.
**Ingredients:** Filtered water, organic soy beans, barley. Malted: Natural ingredients, barley malt, natural vanilla, sea salt. Mocha: Roasted chicory, dandelion, and carob.
**Wt/Vol., Packaging, Price:** 1 liter.
**How Stored:** Refrigerated.
**New Product–Documentation:** The Healing Exchange News. 1988. Jan. p. 7. "The only organic tofu and soymilk available in Victoria." Address: Sooke Soy Foods Ltd., 2625 Otter Point Rd., R.R. 2, Sooke, BC, V0S 1N0. Phone: 642-3263. Label. 1988, received. 5.5 by 4 inches. Self adhesive. Blue, green, and yellow on white. "Organic. Refrigerate. Use within 4 days after opening for quality, freshness."

1678. **Product Name:** Tofu Master Entice (Soymilk Ice Cream) [Chocolate, Strawberry, or Vanilla].
**Manufacturer's Name:** Tofu Master, Inc.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.

**Date of Introduction:** 1986. February
**Ingredients:** Soymilk sugar, corn syrup solids, partially hydrogenated coconut oil, natural and artificial flavour, monoglycerides, guar gum, locust bean gum, carrageenan, food color.
**Wt/Vol., Packaging, Price:** 100 ml cup.
**How Stored:** Frozen.
**New Product–Documentation:** Talk with Kathleen O'Bannon. 1990. March 7. Labels (mockups) for these 3 flavors. 2.75 inches diameter lids. "Frozen dessert–Desert au glace."

1679. **Product Name:** Tofu Master Tofu [Firm, or Soft], and Tofu Master Gourmet Tofu.
**Manufacturer's Name:** Tofu Masters, Inc.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1986. February.
**Ingredients:** 1. Soymilk, calcium sulphate; 2. Water, soybeans, calcium sulfate and/or magnesium chloride.
**Wt/Vol., Packaging, Price:** 1. 500 gm; 2. 10.6 oz (300 gm).
**How Stored:** Refrigerated.
**Nutrition:** 1. Per 100 gm.: Protein 7 gm, fat 3 gm, carbohydrates 1 gm, calories 58, sodium 2 mg, potassium 97 mg. 2. Per 4 oz (113 gm): Calories 120, protein 16 gm, carbohydrate 4 gm, fat 6 gm, cholesterol 0, sodium 0, potassium 180 mg. Percentage of U.S. RDA: Protein 26, calcium 45, iron 10.
**New Product–Documentation:** Talk with Kathleen O'Bannon. 1990. March 7. Label sent by Kathleen O'Bannon. 1990, March. 5.25 by 4.25 inches. Green, yellow, black, and red. Printed on film. Logo of a stylized rayed sun. UPC indicia.

Photocopy of Label sent by Kathleen. 1990. March. 7 by 5 inches. "Sodium free. Preservatives free. Cholesterol free. Product of Canada."

1680. Ward, A. Thomas; Reichert, Robert D. 1986. Comparison of the effect of cell wall and hull fiber from canola and soybean on the bioavailability for rats of minerals, protein and lipid. *J. of Nutrition* 116(2):233-41. Feb. [30 ref]
• ***Summary:*** Hull or cell wall material from canola or soybean or cellulose was added to a basal, semipurified diet at a level of 12% and fed to growing male rats. The apparent availability of copper, iron, calcium, phosphorus, and protein were lower when the fiber-containing diets diet were fed compared to the control diet. Cellulose diets and soybean cell wall diets had the fastest transit times through the digestive tract. Address: National Research Council of Canada, 110 Gymnasium Road, Saskatoon, Saskatchewan, Canada S7N 0W9.

1681. **Product Name:** [Yves Tranches Deli Slices. Bologna Style].
**Foreign Name:** Style Saucisson de Bologne.
**Manufacturer's Name:** Yves Natural Foods (Yves Fine Foods Inc.).
**Manufacturer's Address:** 1138 East Georgia St., Vancouver, BC, V6A 2A8, Canada.
**Date of Introduction:** 1986. March.
**Ingredients:** Tofu (soybeans, nigari, water), pure vegetable oil, wheat gluten, dried [egg] albumen, wheat germ, nutritional yeast, spices, hydrolysed vegetable protein, natural hickory smoked flavor, natural color, beet powder, sea salt, guar gum.
**Wt/Vol., Packaging, Price:** 6 oz (165 gm) vacuum packed. 155 gm retails for $2.29 (8/91).
**How Stored:** Refrigerated, 28 day shelf life. Or frozen.
**New Product–Documentation:** Label. 1987. 3.5 inch diameter. Self adhesive Yellow, red, and black. Self adhesive. A second self-adhesive label on the back lists ingredients, in black only. Company name is Yves Fine Foods Inc., Vancouver, Canada V6B 1G4. Soy Power Co. 1987. Catalog.

Label. 1991. Aug. new design. 4.5 by 5.5 inches. Plastic. Red, blue, white, and tan. "Yves Deli Slices do not contain any animal products and are prepared with fresh organic tofu."

1682. **Product Name:** Tofu.
**Manufacturer's Name:** Tai Foods Inc.
**Manufacturer's Address:** Muir St., Winnipeg, MAN, Canada. Phone: 204-694-0484.
**Date of Introduction:** 1986. April.
**New Product–Documentation:** Boughton. 1987. Small Business (Canada). Dec. p. 12, 14. "Tai Foods Tries for Tofu Converts."

1683. **Product Name:** Tofu Treat (Non-Dairy Soy Ice Cream) [Strawberry, Chocolate, or Vanilla].
**Manufacturer's Name:** Tai Foods Inc.
**Manufacturer's Address:** Muir St., Winnipeg, MAN, Canada. Phone: 204-694-0484.
**Date of Introduction:** 1986. April.
**How Stored:** Frozen.
**New Product–Documentation:** Boughton. 1987. Small Business (Canada). Dec. p. 12, 14. "Tai Foods Tries for Tofu Converts."

1684. Gupta, Raj P. 1986. Re: Selling tofu in Kanpur, India, and soymilk equipment to developing countries. Letter to William Shurtleff at Soyfoods Center, May 9. 1 p. Typed, with signature.
• ***Summary:*** "It is not even one year since we started selling tofu to consumers in Kanpur [India] and suddenly every one seems to be interested in soyfoods in India.

"There is a great deal of interest here in our process, and it is likely that we would have a tie up with a few companies for the use of our process. APV Crepaco (USA), APV Texmaco (India) and Kurihara (Japan) have begun making soymilk equipment based on our process. Some companies here are also interested in no-beany soymeal. I am hopeful that my extended stay here (up to the end of Aug. 1986) will help move things at a reasonable pace.

"Godrej, a large business house here, is setting up a 4000 liter/hour soymilk plant with know-how from Kibun and equipment from Alfa-Laval. Kalyan Solvent Extraction Limited is expected to setup a similar size plant with process and know-how from us and equipment considering to go into large scale soymilk production. In setting up small scale tofu and soymilk operation similar to ours in Kanpur. Several of them have made deposits with us of up to Rs.5000 for the purpose." Address: Ph.D., Vice President, ProSoya Foods International Inc., 801-275 Slater St., Ottawa, ONT, K1P 5H9, Canada. Phone: 613-237-5814.

1685. Beatty, Denise. 1986. 'Lactose intolerant' still need calcium. *Toronto Star (Ontario, Canada).* May 28. p. B4.
• ***Summary:*** If you are lactose intolerant, include non-milk sources of calcium in your diet, such as 1 cup cooked beans (soy, kidney, white; 100 mg calcium); ½ cup tofu (soybean curd; 145 mg calcium).

Lactose, the natural sugar in milk, has to be broken down (hydrolyzed) by an enzyme named lactase before it can be absorbed and used by the human body. If you don't have enough of the enzyme to break down / digest the amount of lactose you are consuming, the undigested sugar remains in the intestine, where it can cause diarrhea, cramps, and intestinal gas.

1686. Agricultural Research Centres: A world directory of organizations and programmes. 8th ed. 2 vols. 1986. Essex, England: Longman. 1138 p. 28 cm.
• ***Summary:*** Vol. 1 is A to M, and Vol. 2 is N to Z. Within each volume, the organizations are listed by country. There is a "title of establishments" index and a subject index. In the subject index, under soya beans (p. 1134) we find listings for organizations that are conducting soybean research in the following countries: Australia (6), Belgium (1), Bolivia (1), Brazil (5), Burkina Faso (1), Cameroon (1), Canada (4), French Overseas Departments (1) France (1), Honduras (1), Indonesia (1), Mexico (1), Peru (1), Romania (1), Sri Lanka (1), Swaziland (1), Taiwan (2), Thailand (2), United Kingdom (1), USA (4), Venezuela (1), Zambia (2), Zimbabwe (1).

1687. *Toronto Star (Ontario, Canada).*1986. Try the Kiku platter: Table for Two. June 24. p. H5.
• ***Summary:*** "Table for Two" is the Star's daily restaurant review. This is a review of the Japanese restaurant Kiku located at 1560 Yonge St. (at St. Clair Ave. Phone: 920-9922).

You are the chef at this recently opened restaurant, which is nearly identical to the first Kiku on King St. West. A as barbecue is sunk in the middle of each table.

"The menu offers several entrees that come with miso soup (containing soybean curd with [sic] tofu and green onion), steamed rice, three vegetables or salad, and green tea."

Note: Tofu is the same as soybean curd.

1688. Lynam, Frances. 1986. Happy birthday tofu, happy birthday tofu [David Mintz about to celebrate Tofutti's fifth birthday]. *Register (Shrewsbury, New Jersey).* June 25. p. 6B, 7B.
• ***Summary:*** "In 1971 Mintz read about tofu in a health magazine... For the next 10 years he spent all his free time creating Tofutti. 'It was a whole new world. It became an obsession.' Today more than 38,000 outlets in all 50 states carry the product. It is also sold in Canada, Australia, Korea, Hong Kong, and the U.S. Virgin Islands. Recently he developed an 'egg' without cholesterol called 'Eggwatchers' and a coffee whitener without milk."

1689. Hanes, Phyllis. 1986. Try designer ice cream for hot treat: Frozen, upscale novelties can be an expensive splurge. *Christian Science Monitor.* June 26. p. R41.
• ***Summary:*** The word "novelties" refers to "ice pops, fudge sticks, covered ice cream balls or squares, frozen fruit juices, frozen tofu or yogurt on a stick, and fancy ice cream cones, cups, or bars with or without sticks."

The United States leads the world in per capita production of ice cream and related products with 44.13 pints per person. Australia is 2nd with 37.21 pints (down 15.7%), followed by New Zealand (35.87), Canada (31.88), and Sweden (28.57).

1690. **Product Name:** Tofu, Soymilk, and Tofu Ice Cream.
**Manufacturer's Name:** Basics (The). Renamed Kootenay Soyfoods in May 1989. Renamed Kaslo Soyfoods in Feb. 1990. Renamed Silverking Soyafoods in Oct. 1990.
**Manufacturer's Address:** Box 933, Kaslo, BC, V0G 1M0, Canada. Phone: 604-353-7726.
**Date of Introduction:** 1986. June.
**How Stored:** Frozen.
**New Product–Documentation:** Talk with Greg Lundh, owner. 1988. Aug. 9. He started making tofu and soymilk in Sept. 1986, and introduced a tofu ice cream shortly thereafter. The latter was an instant hit. All of his tofu is made with nigari and delivered fresh to the homes of his 125 customers in his Volkswagen van. Most customers have standing orders. He features service and freshness. The business is very small but growing. Talk with Greg Lundh, owner. 1988. Aug. 24. The company started making tofu

and soymilk in June 1986. They started making the ice cream in about August 1986. Greg delivers his own products door to door.

Talk with Greg Lundh, owner. 1989. April 28. He now makes 300 lb of tofu a week, one day a week, using a boiling water grind. Still delivers door to door. His company is still unregistered. His only competitor in the interior of British Columbia, Okanagon Soyfoods, went out of business 10 days ago. Now he wants expand from a large blender up to a grinder.

Talk with Greg Lundh. 1990. Oct. 20. His company has been renamed 3 times, as shown above.

1691. deMan, J.M.; deMan, L.; Gupta, S. 1986. Texture and microstructure of soybean curd (tofu) as affected by different coagulants. *Food Microstructure* 5(1):83-89. [13 ref]

• ***Summary:*** Scanning electron microscopy is used to evaluate the microstructure of tofu. Among the 5 coagulants studied, 0.75% calcium sulfate and 0.4% glucono delta lactone (GDL) appeared to be most suitable for making tofu of high bulk weight and smooth texture. Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT, Canada N1G 2W1. Phone: 519-824-4120 x 2515.

1692. American Soybean Association. 1986. Soya Bluebook ’86. St. Louis, Missouri: American Soybean Assoc. 278 p. July. Index (bold face type indicates advertiser). 22 cm.

• ***Summary:*** Contents: Index of advertisers (p. 4). Soybeans: Your profit opportunity, by Dr. Kenneth L. Bader, CEO, ASA (p. 5). Organizations (by country, within each country alphabetically): For each gives the name, address, contact person, year founded, number of members, objectives and activities, publications. Countries are: USA, Australia, Austria, Bangladesh, Belgium, Brazil, Canada, England, Germany (Federal Republic of), Finland, France, Hungary, India, Indonesia, Italy, Ivory Coast, Japan, Malaysia, Mexico, Netherlands, Norway, Philippines, Portugal, Senegal, Spain, Sweden, Taiwan, Turkey, Yugoslavia, Zaire, Zimbabwe. U.S. agricultural education, research & extension (by state; mainly state agricultural / land-grant colleges), ASA international offices and world regions (colored world map and photo of each country director), government trading agencies.

Soy directory: Oil extraction plants / refineries (alphabetically by state in USA, then by country), soyfoods / edible soy products manufacturers (lecithin, soy flour, soy grits, soy protein concentrates & isolates, textured soy protein, binders, extenders, simulated meat products, soy oil products {margarine, shortening, cooking / salad oil, salad dressings}, soyfoods–beverages [soymilk], frozen desserts, soy sauce, tempeh, tofu, whole soybean snacks {soynuts}, other soy-based foods), within each product by country, producers of soy products for industrial manufacturers (by products, etc.): Industrial lecithin, industrial soy flour / soy protein, industrial soy oil, soy sterols and tocopherols, soybean fatty acids.

Soybean manufacturing support industries: Manufacturing equipment & supplies, soybean processing equipment & supplies, manufacturing services. Marketing and auxiliary services: Brokers, financial services, forwarding agents, marketing consultants, trading companies, transportation, warehousing–export / import.

Soy statistics (tables & graphs): Soya conversions [weights & measures], metric conversions, temperature conversions. U.S. soybean planting and harvesting dates (by state). U.S. soybean acreage, yield and production, 1925–1985 (by year). U.S. soybean planted acreage by state (1970–1985). U.S. soybean harvested acreage by state (1970–1985). U.S. soybean yield by state (1970–1985). U.S. soybean production by state (1970–1985). U.S. soybean production major crops (1920–1985): One graph each for soybeans, corn, wheat, and cotton. U.S. harvested acreage of major crops (1920–1985): One graph each for the big 4. U.S. yield per acre of major crops (1920–1985): One graph each for the big 4. Argentine soybean area, yield and production by province (1975-1986). Brazilian soybean area, yield and production by province (1975-1986). Canadian soybean production: Acreage, yield, production, farm price and value (1950-51–1984-85). Canadian soybean production and utilization (1950-1984, year beginning Aug. 1): Production, imports, supplies, exports of beans, processed for oil and meal, soy oil produced, soybean oilcake produced. World soybean production: Area and production in specified countries and the world total (1980/81–1985/86). Soybean production by major countries (one graph, 1925-1985): U.S., Brazil, PRC [China], Argentina. Share of world soybean production [percentage] by major countries (one graph, 1925-1985): Big 4. Soybean acreage by major countries (one graph, 1925-1985): Big 4. Share of world soybean acreage [percentage] by major countries (one graph, 1925-1985): Big 4. U.S. soybeans: Supply, disposition, acreage, yield and price (1970–1986). Soybean usage in the U.S. for crush and exports (one graph, 1925-1985, million bushels). U.S. soybean exports: Percent of total usage (one graph, 1925-1985). Argentine soybeans and products (oil and meal): Supply and disposition (1975/76–1986/87). Brazilian soybeans and products (oil and meal): Supply and disposition (1975/76–1986/87). Prices of U.S. soybeans, No. 1 yellow: Average price per bushel, Illinois country shipping points (by year and month, 1950–1984, dollars). Prices of U.S. soybeans received by farmers: Average price per bushel (by year and month, 1950–1984, dollars). U.S. soybean price support operations (1945-1985, incl. CCC). U.S. soybean crop value: U.S. and major producing states (1925-1985): Illinois, Iowa, Indiana, Ohio, Missouri, Minnesota, Arkansas. Fold-out color map of U.S. soybean acreage by county. U.S. farm marketings of

soybeans: Percent of open market farm sales by month (1975/76–1984/85). Map of U.S. soybean processing plants. Value of U.S. soybean products per bushel and crush margin (1950-1984): Soy oil, soybean meal, soybean price (received by farmers, No. 1 yellow Illinois), margin (ditto). U.S. soybean meal: Prices paid by farmers–44% protein, dollars per 100 lbs, by year and month (1950-1984). U.S. soybean meal: Average wholesale price–44% protein, dollars per ton, bulk Decatur, Illinois, by year and month (1950–1984). U.S. soybean meal: Beginning stocks, production, exports and domestic disappearance, by year and month, thousand short tons (1978/79–1984/85). U.S. soybean cake and meals: Supply, disposition and price (1977-1985): Soybean, cottonseed, linseed, peanut. Major world protein meals: Supply and utilization (1981/82–1985/86; Production, exports, imports, consumption, ending stocks): Soybean, cottonseed, rapeseed, sunflowerseed, fish, peanut, copra, linseed, palm kernel. World major oilseeds: Supply and utilization (1981/82–1985/86). World major vegetable and marine oils: Supply and utilization (1981/82–1985/86). Prices of U.S. soybean oil: Soy oil, domestic crude, average cents per pound in tank cars at Midwestern mills, by year and month (1950/51–1984/85). U.S. soybean utilization, by year (1960-1984): Food–Shortening, margarine, cooking and salad oils, other edible, total. Nonfood–Paint and varnish, resins and plastics, fatty acids, other inedible (incl. soap), total. Total domestic utilization. U.S. soybean oil value as percent of total soybean value (1930–1985). Note: Peaked at about 55% in 1930, fell to about 32% in 1980-81. U.S. soybean oil: Supply, disposition and price (1960-1985). U.S. edible fats and oils: Supply and disappearance (1978-1985): Coconut, corn, cottonseed, lard, palm, peanut, soybean, sunflower, tallow (edible). U.S. exports of soybeans, by year and month (1953–1984). U.S. soybean exports by port and country of destination (Sept. 1984–Aug. 1985): Ports are–St. Lawrence Seaway, Lakes, Atlantic, Gulf (by far the largest), Pacific, Interior. U.S. exports: Soybeans–Volume of exports by country of destination (in metric tons) and total value (1981–1985). U.S. exports: Soybean oil–Volume of exports by country of destination (in metric tons) and total value (1981–1985). U.S. exports: Soybean oilseed cake and meal–Volume of exports by country of destination (in metric tons) and total value (1981–1985). Map of U.S. soybean exports by port areas: Sept. 1984–Aug. 1985 (1,000 bushels). U.S. exports of soybean, cottonseed and sunflowerseed oils: U.S. commercial and P.L. 480 exports–Volume of exports by region and country of destination (in metric tons) and total value (1979/80–1984/85; year beginning in October). U.S. exports: Soybean oil–P.L. 480, Title I and III, volume (in metric tons) and value (in $1,000) by country of destination (FY 1981–1985). U.S. exports of soybean and cottonseed oils: U.S. commercial and P.L. 480 exports (1950–1984, million lbs; incl. P.L. 480 as a percentage of the whole). Brazilian exports of soybeans and products to major countries (1,000 metric tons; 1976-1984). Graph of soybean & product exports by major countries (U.S., Brazil, Argentina) (soybean equivalent; 1970-1985). Graph of world share of soybean & product exports by major countries (U.S., Brazil, Argentina) (1970-1985). Note: U.S. share has fallen from 95% in 1970 to about 50% in 1984.

Glossary: General terms, soy protein terms. Standards & specifications: NSPA, Association of American Feed Control Officials (AAFCO), USDA (definitions and grades). Index. Address: P.O. Box 27300, St. Louis, Missouri 63141.

1693. deMan, J.M. 1986. Processing of protein-rich foods. In: V.H. Potty, et al. eds. 1986. Traditional Foods: Some Products and Technologies. 292 p. See p. 246-52. Aug. Presented at the UN University Workshop on "Traditional Food Technologies: Their Development and Integrated Utilisation with Emerging Technologies." Held June 1983 at CFTRI, Mysore, India. [17 ref]

• ***Summary:*** Under soybeans (the major crop discussed in this chapter), the author mentions tofu, soy milk, fried tofu and tofu puffs. Includes a proximate analysis of various Canadian soybean cultivars. Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT, N1G 2W1, Canada.

1694. Nielsen Marketing Research. 1986. Nielsen warehouse shipment service market snapshot: Total soya sauce (52 weeks to Aug. 30, 1986). 1 p. Unpublished manuscript.

• ***Summary:*** In the year prior to 30 Aug. 1986 shipments of soy sauce in Canada (excluding Yukon and Northwest Territories) were 493,100 imperial gallons, worth $8,916,000 at the retail level. Of this total, 64.6% by volume was sold in eastern Canada (Maritimes, Quebec, and Ontario), and 35.4% was sold in western Canada (Manitoba, Saskatchewan, Alberta, and British Columbia). Address: Canada.

1695. **Product Name:** Tofu Parlor (Soymilk Ice Cream) [Hard Pack, and Bar; Strawberry, Chocolate, or Vanilla].
**Manufacturer's Name:** Tofu Parlor Desserts / Tofu Restaurant and Ice Cream Parlor Ltd.
**Manufacturer's Address:** 304 Victoria Ave. East, Regina, SASK, S4N 0N7, Canada.
**Date of Introduction:** 1986. August
**Ingredients:** Soymilk, sugar, corn syrup solids, partially hydrogenated coconut oil, natural and artificial flavour, monoglycerides, guar gum, locust bean gum, carrageenan, food color.
**Wt/Vol., Packaging, Price:** 1 liter carton and 100 ml cup.
**How Stored:** Frozen.
**New Product–Documentation:** Talk with Kathleen O'Bannon. 1990. March 7.

Photocopy of Label. 1986? 13.5 by 5 inches. Written in both English and French. “Nutritious non-dairy dessert. An edible oil product. No preservatives added. No lactose.” Illustration of something vaguely resembling a soybean sprouting out of something vaguely resembling a hinged Styrofoam box.

Photocopy of label from Tofu Parlor Bar. The artwork was done in Vancouver in July 1986. 1 box contains 12 bars, 75 ml each. The text is written in English and French. “Tablettes Glacées au Tofu. A 3000 year old tradition.”

Leaflet. Undated. 4 by 8.5 inches. “Tofu Parlor. Nature’s dessert. Non dairy. No cholesterol. No lactose. No additives.” 32 calories per fluid ounce serving (less than half the calories of other frozen desserts). Yes, I want to know more about Tofu Parlor products and franchises, says a form at bottom.

1696. Tremblay, Yvon. 1986. Le tofu. 120 recettes faciles même si vous n’êtes pas végétarien [Tofu. 120 easy recipes even if you are not a vegetarian]. Montreal and Paris: Stanke Ltee. 137 p. Aug. Illust. No index. 21 cm. [Fre]
• ***Summary:*** Reviewed in Dietetique en Action. 1988. 1(2):30. Oct. Contents. Preface. Preparation of tofu. 1. Entrées. 2. Soups. 3. Salads. 4. Sauces and stuffings. 5. Main dishes. 6. Desserts. Address: 12080 Pasteur, Montreal, QUE, H3M 2P9, Canada.

1697. *Windsor Star (Essex County, Ontario, Canada).*1986. New dryers expected to end fire hazards. Sept. 23. p. A5.
• ***Summary:*** “Maple Leaf Monarch Company says new grain dryers to be installed in about 8 weeks should eliminate the nagging problems the company has had with fires.” The local labor union leader said he had records of 200 to 300 fires at the plant during 1983 and 1984, although most were small and quickly extinguished by the workers. A photo shows puff of smoke seen coming from a recent Maple Leaf Monarch fire.

1698. *Plenty Bulletin (Summertown, Tennessee).*1986. Jamaica soy. 2(3):1-3. Fall. [5 ref]
• ***Summary:*** “Recently, the Jamaican Government has launched an aggressive agricultural program (titled ‘AGRO 21’) which is designed to boost production of foods that can be grown locally, in order to decrease the need for precious foreign exchange... Consequently, soybean production has been conceived as one of the top priorities by the Ministry of Agriculture. Ironically the plan focuses on the use of soybeans to provide cooking oil and animal feed... With the participation of the Israelis and other foreign investors, soybeans are fast becoming one of the major field crops on the island...

“In 1983, Plenty USA’s sister organization, Plenty Canada, established an agricultural project on the north-central coast of Jamaica. Craig Bialick, an agronomist and soy foods technician who had worked 3 years with Plenty’s soy projects in Guatemala in the late 1970’s, was hired by Plenty Canada for the Jamaica project.

“Craig spent 15 months in Jamaica, June 1984-September 1985... He organized a school lunch program and set up a soy foods processing training center in Claremont, St. Ann. He also carried out numerous ‘soy demonstrations’ wherein local participants were taught how to prepare soy foods using only the facilities available in their home kitchens. 107 of these public demonstrations reached over 6,000 people from 4 different parishes on the island. Typical locations were schools, churches, clinics, youth clubs and weekly markets.”

The Country Farmhouse Project in Kingston, Jamaica is run with the help of two Jamaican young people, Rasino D’Aguilar and his wife, Mohi. This small-scale cottage industry, which has been in business for 1 year on a shoestring budget, makes soy ice cream, tofu, soy mayonnaise, and a variety of okara burgers. Some of their products are sold at a weekly market sponsored by the Jamaica Vegetarian Society.

Photos show: (1) Jamaican kids making soy ice cream in Kingston. (2) Rasimo D’Aguilar preparing soymilk for making tofu at the Country Farmhouse kitchen in Kingston, Jamaica.

1699. Plenty Canada. 1986. Plenty Canada: Our 10th year of service–self-help projects in the developing world since 1976 (Brochure). Lanark, Ontario, Canada. 10 panels. Back and front.
• ***Summary:*** Includes a detailed discussion of Plenty Canada’s projects in the Quthing Valley, Lesotho–which is inside = landlocked by the Republic of South Africa. Lesotho gained independence in 1966.

Black and white photos show: (1) Half of the Village Technology Training Center, a round mud-brick building with a conical thatched roof, with solar electric cells and a solar water heater on the roof. (2) Two Basotho village women at the Soy Centre inside this building; one is weighing tofu. (3) The village spring, which Plenty Canada tapped and piped clean water to the village for drinking, cooking, and irrigation. Address: Plenty Canada, R.R. 3, Lanark, ON K0G 1K0, Canada.

1700. **Product Name:** The Ultimate Tofu (Non-Dairy Frozen Dessert).
**Manufacturer’s Name:** Ultimate Tofu, Inc., of Mississauga and Eplett Dairies Co. Ltd. (The).
**Manufacturer’s Address:** Brampton, Ontario, Canada.
**Date of Introduction:** 1986. September.
**How Stored:** Frozen.
**New Product–Documentation:** Foodservice & Hospitality (Toronto). 1986. Sept. This company is the fourth largest dairy in the province.


1701. Brandenburg, Fred. 1986. Re: Enclosing photocopies of documents you requested. Letter to William Shurtleff at Soyfoods Center, Oct. 22. 1 p. Typed, with signature on letterhead.

• ***Summary:*** "Enclosed are photocopies of most of the documents you requested in your letter of June 21, 1986." The title pages of the OSGMB Annual Reports are not included.

"These documents are available in the archives of the University of Guelph library, in Guelph, Ontario, N1G 2W1. They will be happy to provide you with additional information regarding publications from the Ontario Agricultural College.

"Please accept this information with my compliments." Address: Secretary Manager, The Ontario Soya-bean Growers' Marketing Board, P.O. Box 1199, Chatham, Ontario N7M 5LB, Canada. Phone: 519-352-7730.

1702. Muendel, H.-H. 1986. Emergence and vigor of soybean in relation to initial seed moisture and soil temperature. *Agronomy Journal* 78(5):765-79. Sept/Oct. [18 ref]

• ***Summary:*** Phytron and field studies were used on two early maturing soybean varieties, Maple Presto, and King Grain X005 to assess the effects of initial seed moisture and soil temperature on emergence and seed yield of soybean. "Each 1ºC decrease in mean soil temperature between 17.3 and 8.5ºC resulted in a 2-day delay of emergence... Using early maturing cultivars and seed lots with high germinability and seeding when soil temperatures are above 10ºC are the recommendations for climatically marginal soybean areas such as southern Alberta." Address: Research scientist, New Crops Breeding, Canada Research Station, Lethbridge, Alberta, T1J 4B1, Canada.

1703. *Soybean Digest.*1986. ASA soybean processing short course [in Saskatoon, Saskatchewan, Canada]. Oct. p. 36.

• ***Summary:*** 24 people (oilseed processors, plant managers and engineers) from 14 countries attended to learn technical aspects of producing high-quality soybean meal and oil.

1704. Potter, Michael. 1986. History of Eden Foods: Building a soymilk plant in America (Interview). *SoyaScan Notes.* Dec. 12. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** On 1 August 1986 it was announced that a major new joint stock company, named American Soy Products, had been established to produce Edensoy soymilk in Saline, Michigan, 30 miles west of Detroit, at a new state-of-the-art manufacturing and packaging facility. Michael Potter played a major role in conceiving and pulling together this innovative, exciting, and promising new venture. In July 1983 Eden Foods launched their first Edensoy soymilk, made by Marusan Ai in Okazaki, Japan. It soon proved to be a great success. When Potter began to talk with Marusan Ai about building a soymilk plant in the USA, he found that they were wary. In 1982-83 Marusan had had extensive discussions with Hinode Tofu Co. in Los Angeles, California, about a soymilk joint venture, but the talks eventually broke down over small points; Marusan felt they had wasted a lot of time and money to no avail. So Potter focused on Muso. With competition eating into their domestic Japanese health food market, a venture in America looked promising. Yet neither Eden nor Muso had the capital to build a soymilk plant in America. Enter Kawatetsu Shoji, better known as Kawasho International. A big New York based firm with money, influence, power, and experience in international business and joint ventures, they were looking to diversify out of coal, steel, and other commodities, into branded foods. They already knew Eden Foods (they had been financing their growing Edensoy imports and inventories from Japan) and they liked the fact that Eden knew Japan and seemed to have a solid, growing product. Kawasho's endorsement of the project was enough to overcome Marusan's reluctance. And with Marusan came Seikensha, the Tokyo based company that had built Marusan's state-of-the-art soymilk equipment. The historic joint venture package, called American Soy Products, was officially founded in June 1985.

Gross investment in the new company was $10 million. Percentage ownership was Marusan Ai 25%, Kawatetsu Shoji (Kawasho Intl.) 25%, Muso 15%, Seikensha 10%, and Eden Foods Inc. 25%. The chairman of the board was Michael Potter of Eden Foods and the president was Mr. Hiroyasu Iwatsuki, Marusan's soymilk manager, who soon moved to Michigan to go to work.

Each partner had a unique and valuable set of skills to offer. As before, Eden Foods would continue to be responsible for marketing, selling, and distributing all soymilk made by the new company. Kawasho would oversee administration and financing. Marusan would take care of soymilk production. And Muso would coordinate international sales. Seikensha, which has patents on key pieces of soymilk manufacturing equipment, would supply the plant equipment.

Open houses in mid-September were attended by the media and a host of state dignitaries, including the Director of Michigan's Department of Agriculture, who called the new plant "a perfect marriage of high technology and the area's farming." These events, and additional promotion done by a newly-hired, local marketing and advertising firm named Group 243, gave the project extensive, very positive publicity. Widespread color print media advertising, focusing on Edensoy's new larger size package, was also started.

In late October 1986 the sparkling new 22,000 square foot stainless steel plant at Saline (12 miles northeast of Clinton and just south of Ann Arbor, in the southeast corner of Michigan) started test runs, which were carefully monitored by the FDA for 6 weeks. Both the Japanese soymilk equipment and the Swedish low-acid Tetra Brik packaging lines were said to be the most modern of their kind in the world. The company had spared no expense to "do it right." Japanese technicians now living in Saline were training American counterparts.

The factory and land had cost $2.3 million and equipment cost $4.3 million. The company committed $700,000 for startup costs, $1.8 million for marketing funds, and $700,000 for working capital. By November 1986 most of this money had been spent.

The new Edensoy was packaged in both regular (250 ml or 8.45 fl. oz. for $0.59) and large (1 liter for $1.99) Tetra Brik cartons, in plain, carob, and vanilla flavors. The new prices were significantly lower than before. For example, in 1984 (when it was historically least expensive) Edensoy in a 6-ounce retort pouch had retailed for $0.69 to $0.79, or an average of 12.3 cents per ounce. The new 250 ml (8.45 fl. oz.) pack retailed for only 7.0 cents per ounce (down 43%), while the liter size (33.8 fl. oz.) retailed for only 5.9 cents per ounce (less than half the retort pouch, and 16% less than the 250 ml pack). Yet compared with cow's milk at 54 cents per quart (32 fl. oz.) or 1.7 cents per ounce, the Edensoy products are still 3.5 to 4.1 times as expensive per ounce; a much lower ratio than in 1984 but still quite high.

A cornerstone of Eden's food procurement policy since 1973 was the support of local farmers. And Saline was in the heart of Michigan's soybean country. The estimated 85,000 bushels a year of soybeans used to make Edensoy will all be grown on contract with individual Michigan farmers located within a 10-mile radius of the plant. Beeson variety soybeans will be used; though low yielding for farmers, they have a low-oil, high-solids composition and give excellent soymilk. Numerous standard grade parameters will also be specified. Growers will typically receive premiums of 15-30% over conventional markets. By mid-1987 American Soy Products (ASP) hopes to start using organically grown soybeans.

One nice by-product of the new ASP plant was the fact that it was the only plant and Tetra Brik line located in that part of the USA especially designed to package low-acid foods; there were only two others in the entire country, both on the West Coast, and used mostly to pack milk. Thus a host of other companies, wishing to have their own low-acid products packed on Tetra Brik machines, started to line up to use ASP's equipment. This sort of contract packing would serve as an important source of income and keep the packaging operation running 24 hours a day.

ASP's initial run is scheduled to produce 100,000 packages of 250 ml equivalent. The company's first year sales goal is $5,000,000 produced on 2 shifts. But the first problem is to fill the 20 truckloads that were back ordered.

In November Eden Foods decided that on 1 Jan. 1987 they will stop serving as a wholesale distributor to retail stores in the Midwest (10% of their total business), drop 150 products, and serve as a master distributor, selling only through other distributors. This will allow additional attention to be paid to American Soy Products. Still big marketing and distribution questions remain: Will ASP use brokers? Go direct? Go through grocery distributors? Who does ASP see as their stiffest soymilk competition? Vitasoy and Sunsoy?

What about future plans? A French label for the Canadian market. Organic soybeans. The use of a grain (such as brown rice, barley, etc.) in the Edensoy formula. A cautious attempt to break into the mass market via super markets, but only after careful test marketing in specific areas. Eventually other similar plants in other parts of the United States.

American Soy Products and the new Edensoy are the most exciting soymilk ventures of 1986, and ones that the industry will be watching closely. Address: President, Eden Foods Inc., Clinton, Michigan.

1705. Agriculture Canada, Policy Branch, Ministry of Supply and Services. 1986. Handbook of selected agricultural statistics, 1986. Ottawa, Canada: Queen's

Printer and Controller of Stationery. Dec. Continues "Selected Agricultural Statistics for Canada and the Provinces."
• ***Summary:*** Page 53 gives yearly statistics which show that the area planted to soybeans in Canada and Ontario increased from 690,000 acres 1979 to an estimated 1,000,000 acres in 1986. Page 55 shows that the soybean yield increased during this period from 35.0 bushels per acre to 36.3 bu/acre. Page 57 shows that the total production increased from 24,150,000 bushels to 36,300,000. Address: Canada.

1706. *Soyanews (Sri Lanka).*1986. Canada's soya promotion project comes to Sri Lanka. 8(4):1, 5. Oct/Dec.
• ***Summary:*** Working with 25 selected families in each of 5 areas in the Kandy District, Plenty volunteers will teach cultivation of a new variety of soybeans as a home garden crop. Two more soya food centers for training and retailing will be opened. Ian Taylor is director of the Plenty Project.

1707. **Product Name:** Noelnog (Soymilk Eggnog, without Eggs or Dairy Products).
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada.
**Date of Introduction:** 1986. December.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Michael Weiner. 1987. Dec. 16. The major market is Los Angeles.

1708. **Product Name:** Tripple Delight (Soy Protein Based Ice Cream).
**Manufacturer's Name:** Tripple Products Inc.
**Manufacturer's Address:** Victoria, BC, Canada.
**Date of Introduction:** 1986. December.
**How Stored:** Frozen.
**New Product–Documentation:** Food in Canada (Toronto). 1986. Dec. Tripple Delight, incorporated in February 1985 and headed by Don and Deedrie Ballard, has launched a soy protein-based ice cream and a soy protein-based chocolate drink. These have been developed in concert with Dr. William Powrie of the University of British Columbia Food Sciences Department.

1709. **Product Name:** Tripple Delight (Soy Protein Based Chocolate Drink).
**Manufacturer's Name:** Tripple Products Inc.
**Manufacturer's Address:** Victoria, BC, Canada.
**Date of Introduction:** 1986. December.
**New Product–Documentation:** Food in Canada (Toronto). 1986. Dec. Tripple Delight, incorporated in February 1985 and headed by Don and Deedrie Ballard, has launched a soy protein-based ice cream and a soy protein-based chocolate drink. These have been developed in concert with Dr. William Powrie of the University of British Columbia Food Sciences Department.

1710. **Product Name:** [Hydrolyzed Vegetable Protein {HVP}].
**Manufacturer's Name:** Champlain Industries Ltd.
**Manufacturer's Address:** 176 Principal Rd., Stanbridge Station, QUE, Canada. Main office: Mississauga, ONT, Canada.
**Date of Introduction:** 1986.
**New Product–Documentation:** Soya Bluebook. 1986. p. 89.

1711. **Product Name:** Soynuts.
**Manufacturer's Name:** Dayspring Soyacraft Corporation.
**Manufacturer's Address:** 626 Esquimalt Rd., No. 5., P.O. Box 7285, Station D., Victoria, BC, V9A 3L4, Canada.
**Date of Introduction:** 1986.
**New Product–Documentation:** Soya Bluebook. 1986. p. 108.

1712. **Product Name:** Tofu Pasta.
**Manufacturer's Name:** Dayspring Soyacraft Corporation.
**Manufacturer's Address:** 626 Esquimalt Rd., No. 5., P.O. Box 7285, Station D., Victoria, BC, V9A 3L4, Canada.
**Date of Introduction:** 1986.
**New Product–Documentation:** Soya Bluebook. 1986. p. 111.

1713. **Product Name:** Soysage Rolls.
**Manufacturer's Name:** Dayspring Soyacraft Corporation.
**Manufacturer's Address:** 626 Esquimalt Rd., No. 5., P.O. Box 7285, Station D., Victoria, BC, V9A 3L4, Canada.
**Date of Introduction:** 1986.
**New Product–Documentation:** Soya Bluebook. 1986. p. 111.

1714. Gupta, M.P.; Gupta, R.P.; Gupta, R.R. 1986. Food processing in oxygen-free environment [Soymilk]. *PCT International Patent Application* WO 86/05659. *
• ***Summary:*** Legumes are disintegrated and heated under vacuum in an oxygen free environment to inactivate lipoxygenase. The resulting soymilk is claimed to be bland and free from off-flavors or beany flavors. It also has no throat catching sensation or chalky mouthfeel. Address: Raj Gupta, ProSoya Foods International Inc., 801-275 Slater Ave., Ottawa, ONT, K1P 5H9, Canada. Phone: OF 613-237-5814. HM 613-741-2558.

1715. Ontario Soya-Bean Growers' Marketing Board. 1986. Ontario soybeans in Japan (Color videotape). Chatham, Ontario, Canada. 23½ minutes. Undated.
• ***Summary:*** Shows how Ontario soybeans are used to make tofu, miso and natto in Japan. Includes interviews with end

users who make tofu, miso, and natto.

Note: This is the earliest known videotape about soy or tofu owned by Soyfoods Center. Address: Chatham, Ontario, Canada.

1716. **Product Name:** Tofu Dessert (With Fruit).
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada.
**Date of Introduction:** 1986.
**New Product–Documentation:** Talk with Michael Weiner. 1987. Dec. 16.

1717. **Product Name:** Soya Drink [Honey Sweetened Chocolate, Honey Sweetened Vanilla/Almond, Sweetened Plain, Unsweetened Plain].
**Foreign Name:** Boisson de Soya (Sucré au Miel Chocolat, Sucré au Miel Vanille/Amande, Sucré, Non Secré).
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada. Phone: 604-254-0701.
**Date of Introduction:** 1986.
**Ingredients:** Vanilla/Almond: Soy milk (water, organically grown soya beans), honey, barley malt, natural flavours, locust bean gum, carrageenan, sea salt.
**Wt/Vol., Packaging, Price:** 1 litre carton.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Michael Weiner. 1987. Dec. 16. Peter Joe of Sunrise now makes soymilk for the Chinese market and flavored soymilks for the supermarkets. 4 Labels. 1987. Vanilla/Almond: Brown, light green, and red on white. Illustration of a sun rising over the fields plus flower motif. "A good source of protein." Note the use of the term "soy milk" or "lait de soja" in the bi-lingual ingredient listing! Form filled out by Peter Joe. 1988. May 20. Gives date.

1718. **Product Name:** [Tofu Cutlets].
**Foreign Name:** Cotelettes de Tofu.
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada. Phone: 604-254-0701.
**Date of Introduction:** 1986.
**Ingredients:** Water, extract of soy, calcium sulphate, magnesium chloride, vegetable oil.
**Wt/Vol., Packaging, Price:** 300 gm (10.6 oz).
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 1987. 3.5 x 2.5 inches. Red and black on beige. Form filled out by Peter Joe. 1988. May 20. Gives date.

1719. **Product Name:** [Tofu].
**Foreign Name:** Tofu.
**Manufacturer's Name:** Tofu Unisoya.
**Manufacturer's Address:** 1020 St. Regis, St. Isidore, QUE, J0L 2A0, Canada. Phone: 514-454-3938.
**Date of Introduction:** 1986.
**New Product–Documentation:** Talk with Yvon Tremblay and Richard Milon. 1987. Dec. 11. Unisoya was started in 1976 by Norbert Argiles. It was one of the first tofu shops in Quebec. Their tofu was sold in Montreal. Argiles worked for 10 years then burned out. He sold the company, which still exists. The present owner is Mr. Real Beaulieu, a farm family.

1720. **Product Name:** Soy Ice Cream.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1986.
**How Stored:** Frozen.
**New Product–Documentation:** Soya Bluebook. 1986. p. 104.

1721. Agriculture Canada, Research Branch. 1986. Advancing agriculture. A history: Kentville Research Station. Kentville, Nova Scotia: ACRB. 185 p. See p. 82, 86-89. Illust. 23 cm.
• ***Summary:*** The chapter titled "Field Crops," by G.G. Smeltzer and M.C. McKenzie, notes (p. 86-88): "Gerald G. Smeltzer, with a B.Sc. degree in Agriculture from McGill University and with 16 years experience in extension work, was placed in charge of the illustration stations [model farms] in May 1953... The success of the ensilage corn program gave Smeltzer the needed impetus to turn his attention to problems of growing field peas, faba beans, soy beans [in 1954], grain sorghum, other new crops, and cereals... Smeltzer developed summer field meetings and displays of crop results during the winter... In 1966, Smeltzer won the 'Man of the Year' award from the Annapolis Valley media for his valuable contributions to agriculture, and after his retirement in 1978, he received a number of awards from grateful farmers' organizations."

The preparation of this history was initiated by Dr. G.M. Weaver, Director. The Kentville Experimental Station was established in 1911 at the behest of the Nova Scotia Fruit rowers Assoc. Experiments began in about 1912. Address: Kentville, Nova Scotia, Canada.

1722. Anstey, T.H. 1986. One hundred harvests: Research Branch, Agriculture Canada, 1886-1986. *Research Branch, Agriculture Canada, Historical Series* No. 27. xvi + 432 p. See p. 228-30. [6 ref]
• ***Summary:*** "William Saunders first planted soja [sic] bean on the Central Experimental Farm in 1897. Because all available varieties were long-seasoned and would not mature sufficiently to produce ripe seed, the soybean was harvested as hay when pods were about half filled. As

recently as the late 1930s no variety was available that would reliably mature seed when grown in Canada...

"The first effort to improve soybean for Canadian conditions was in 1923 when F. Dimmock organized extensive variety trials at Harrow. He transferred to the Forage Crops Division, Ottawa, in 1927 but continued to manage the Harrow soybean trials until C.W. Owen was appointed in 1929. Dimmock inaugurated a selection program within the Manchu variety to find earlier maturing varieties for southwestern Ontario. The first selection, A.K. (Harrow), was released in 1931. It was not until 1943, however, that Harosoy was released from the crossbreeding program started in 1936. The introduction of Harosoy from the Experimental Station, Harrow, marked the beginning of the commercial soybean industry in Canada. By 1959 Harosoy was the most important variety in Canada, occupying about 70,800 ha (75 percent of the soybean) in Ontario and about 1,620,000 ha (15 percent) in the United States.

"Dimmock at Ottawa and Owen at Harrow used germ plasm obtained from Harbin, China, to develop early varieties. They also freely exchanged parental material with the University of Minnesota; consequently the three programs produced similar varieties.

"The objectives of the Harrow and Ottawa programs were to develop varieties that would mature sufficiently early for all seed to ripen before harvest (125-130 days) and to have strong upright branches that held seed pods well above the ground for ease in harvesting...

"The Ottawa program emphasized production of early varieties because the growing season in the northern part of Ontario, Quebec, and Manitoba was about 10 days shorter than at Harrow. In 1961 L.S. Donovan assumed responsibility for the Ottawa soybean (and corn) breeding programs. His objective was to develop varieties of soybean that would mature in the Ottawa River valley of Quebec and Ontario and in southern Manitoba. To achieve this goal he turned to Sweden, which had obtained early maturing, day-neutral varieties from the Sakalin [sic, Sakhalin] Islands of northern Japan. By using this new germ plasm in combination with material from Germany, Donovan widened the genetic base of his breeding program and made outstanding progress... From this program came Maple Arrow (1976), Maple Amber (1981), and Maple Presto (1982). At the time of introduction, Maple Presto was the earliest maturing soybean licensed in Canada...

"Recently H.D. Voldeng of the Ottawa Research Station developed two edible varieties grown specifically for the Japanese market. To obtain the needed small seeds Voldeng turned to wild soybean from China, which has black seeds in small pods...

"In 1978, in cooperation with the Alberta Department of Agriculture, a soybean breeding program was initiated at Lethbridge. H.-H. Mündel was appointed to develop varieties suitable for irrigated lands." Address: Canada.

1723. Chang, Kwang-chih. 1986. The archaeology of ancient China. 4th ed. New Haven, Connecticut, and London: Yale University Press. xxv + 450 p. See p. 362. Illust. Index. 25 x 22 cm. [ soy ref]

• ***Summary:*** In Chapter 6, "The First Civilizations: The Three Dynasties," is a section titled "The rise of the Three Dynasties and their common characteristics." The three dynasties are Hsia (perhaps Erh-li-t'ou), Shang, and Chou, which existed from about 2000 B.C. to 207 B.C. The archaeological record shows that all three shared a number of common characteristics in both material culture and cultural processes. A map (p. 367) shows they were located in the area with the greatest distribution of copper and tin mines in ancient China; bronze is an alloy of copper and tin.

The author reviews the archaeological evidence and summarizes the shared characteristics. The people of all three civilizations were farmers of the millets: Foxtail millet *(Setaria italica)* and panic [broomcorn] millet *(Panicum miliaceum)*. They used bone, stone, and shell hoes and sickles, and mortars and pestles. "We know that the Shang and Chou also planted soybeans, wheat, and some rice, but this we know only from inscriptions and texts, which are unavailable for Erh-li-t'ou."

Note: In other words, soybeans have not been found in archaeological sites in early China.

The soybean is also mentioned in a table titled "Principal cultivated plants of China" (p. 80), based on H.L. Li (1966). It states that the soybean *(Glycine max)* is the principal legume of north China and that red beans [azuki] *(Phaseolus angularis)* are the main legume of south China / Southeast Asia. The two main cereals of north China are broomcorn millet *(Panicum miliaceum)* and foxtail millet *(Setaria italica)*, while rice and Job's tears *(Coix lacryma-jobi)* are the two main cereals of south China / Southeast Asia.

For an excellent history of "Modern and contemporary archaeology" in China, see p. 12-21. The modern period began after the revolution of 1911, and many important discoveries were made during the 1920s. "The Geological Survey of China, established in Peking in 1916, was the principal early instrument of the Western science of field work. The Western scientists working under it who exerted the strongest influence on China: A.W. Grabau (American), J.G. Andersson (Swedish), Davidson Black (Canadian), J.F. Weidenreich (German), and Pierre Teilhard de Chardin (French). Of these people, Andersson (fig. 5) undoubtedly exerted the strongest influence on Chinese archaeology (p. 13-14). He wrote: '1921 was a red-letter year: the Neolithic dwelling site at Yang Shao Ts'un, the Eocene mammals on the Yellow River, the Shao Kuo T'un cave deposit in Fengtien and the still more remarkable cave discovery at

Chou K'ou Tien, which became world famous by the work of those who followed after us'" (p. 14). Address: Prof. of Anthropology, Yale Univ., New Haven, Connecticut.

1724. Erasmus, Udo. 1986. Fats and oils: The complete guide to fats and oils in health and nutrition. Vancouver, BC, Canada: Alive Books. 363 p. Foreword by Jeffrey S. Bland, Ph.D. Illust. by Evelyn Mielke. Index. 23 cm. [131* ref]

• ***Summary:*** This is a very interesting and well-researched book, written for a lay audience by a layman (who was enrolled in medical school then dropped out in his search to understand the nature of health–the integration of a healthy body, mind and energy). It emphasizes the effects on health of fats and oil products, and discusses in detail the nature of the chemical changes to which industry subjects natural raw foodstuffs and the effects of these changes on nutritional qualities and health. It introduces the work of Dr. J. Budwig in the area of fats, oils, nutrition, and health to English-language readers.

Contents: Section One: Facing the fats–Molecules and components of fats and oils. 1. Fatty acids–an overview. 2. Naming the fatty acids. 3. Saturated fatty acids. 4. Sugars and starches, 5. Unsaturated fatty acids. 6. Essential fatty acids. 7. Triglycerides. 8. Phosphatides (phospholipids) and membranes. 9. Lecithin. 10. Cholesterol. 11. Essential nutrients.

Section Two: Life in the fat lane–Fats and oil business, processes, and promotion. 12. History of oil making. 13. The fats and oils business. 14. Oil making (commercial style). 15. Hydrogenation. 16. *Trans*-fatty acids. 17. Toxic products. 18. Free radicals. 19. Frying. 20. Advertising. 21. Polyunsaturates. 22. Vitamin E and polyunsaturates. 23. Cold-pressed oils. 24. Containers and storage of oils. 25. Labeling oil products.

Section Three: Fats and figures–The human body. 26. Body fat. 27. Fat consumption and daily requirement. 28. Digestion of fats and oils. 29. Metabolism of fats and oils. 30. Vitamin and mineral co-factors in fat metabolism. 31. Individuality. 32. Orthomolecular nutrition. 33. Stress and the battery of life. 34. Calories and fats. 35. Blood cholesterol: The plasma lipoproteins: HDL and LDL.

Section Four: Fat options–Fats in food products. 36. Diet controversy. 37. Fats in foods. 38. Cholesterol in foods. 39. Fats in meats. 40. Fats in milk and dairy products. 41. Fats in poultry. 42. Eggs. 43. Oils in seeds. 44. Butter versus margarine.

Section Five: Researching the fats–Findings, breakthroughs, and applications. 45. Oils from fish and other sea foods: EPA and DHA. 46. Oil of evening primrose. 47. Prostaglandins. 48. Flax. 49. The oil-protein combination. 50. Recipes. 51. Oil and sunshine. 52. Rating the diets for oils. 53. Wholesome nutrition.

Section Six: Fats and fates–fats and disease. 54. Changes in fat consumption and degenerative disease. 55. Fatty degeneration. 56. Cholesterol and disease. 57. Fats and aging. 58. Recommendations. 59. Health. Notes. Glossary. Bibliography.

The following is a list of the percentage of omega-3 fatty acids in vegetable oils: Flax oil 55%; chia seed oil 35%; pumpkin seed oil 15%; canola oil 10%; soy oil 9%; walnut oil 5%.

For decades refined oil has erroneously been called "cold pressed." Since processing temperatures in refining usually rise to 470ºF, the world "cold" does not apply. Refined oils are made clear and light by degumming (90º-120ºF), separation (140º-160ºF), bleaching (230ºF), and deodorizing (470ºF). Spectrum Natural's Extra certified organic Extra Virgin Olive Oil never exceeds 80ºF. Selling for $27.50 in hard-bound only, this book is available through Spectrum Marketing, Petaluma, California.

Note: The soybean, by far the world's leading oilseed, is not even listed in the index. But the soybean is mentioned very briefly on pages 11, 56.

The chapter titled "Hydrogenation" opens: "An excellent way to ruin the nutritional value (the essential fatty acids) of a sample of natural oil is to hydrogenate the oil... If the process is brought to completion all of the double bonds in the oil are saturated with hydrogen." Address: British Columbia, Canada.

1725. Johnson, W.E.; Smith, A.E. 1986. Indian Head Experimental Farm, 1886-1986. *Research Branch, Agriculture Canada, Historical Series* No. 23. 44 p.

• ***Summary:*** A good history of the Indian Head Experimental Farm in Saskatchewan, Canada, with many early photos. Page 10 contains a biography and photo of Angus MacKay, who introduced soybeans to Saskatchewan. Soybeans, however, are not mentioned in the book. The year 1886 is the centennial of the research branch, Agriculture Canada. Address: Research Branch, Agriculture Canada, P.O. Box 440, Regina, SASK, S4P 3Z2, Canada.

1726. Lu, Henry C. 1986. Chinese system of food cures: Prevention & remedies. New York, NY: Sterling Publishing Co., Inc. 192 p. Index. 23 cm. [11 ref]

• ***Summary:*** Chapter 7, titled "Legumes, grains, oils and seeds," discusses the following: Small red bean (adzuki bean): Edema, beriberi, jaundice, diarrhea, discharge of blood from anus, carbuncle swelling, mumps, cirrhotic ascites (p. 107). Bean curd (tofu): Pink eyes, diabetes, periodic diarrhea, sulfur poisoning (p. 111). Yellow soybean: Malnutrition in children, diarrhea, abdominal swelling, underweight, getosis (p. 111). Black soybean: Edema, beriberi, jaundice, rheumatism, muscular cramps, lockjaw, drug poisoning. Soybean oil: Gastric ulcer,

duodenal ulcer, intestinal obstruction. Soy sauce: Promotes digestion (p. 112).

Note: Although he was born in Taiwan, Dr. Lu was quite skeptical of traditional Chinese medicine. But during this twenties he developed an ailment that resisted every form of Western medical treatment. In desperation, he traveled to Taiwan and Hong Kong to consult with Chinese specialists. The results changed his life. A traditional Chinese doctor cured him in a few months. Dr. Liu already held a PhD in education and philosophy from the University of Alberta. But at age 32 he decided to change his field. He began by translating the *Nei Jing (Yellow Emperor's Classic of Internal Medicine)* into English. He went on to translate 25 other Chinese medical books into English, including 7 books on acupuncture that are now listed as required texts by the Board of Acupuncture examiners. In 1972 he began practicing traditional Chinese medicine and acupuncture. In 1986 he founded the Academy of Oriental Heritage (in Vancouver, British Columbia), which now (1999) has 15 full-time teachers and more than 100 students. Address: Academy of Oriental Heritage, P.O. Box 35057, Station E, Vancouver, BC V6M 4G1, Canada.

1727. Madison College Alumni Association. 1986. A pictorial history of Madison College, a school of divine origin 1904-1964. Madison, Tennessee. viii + 269 p. Illust. 28 cm.

• ***Summary:*** Several articles about Madison from other publications (e.g. Hastings 1938; Holman 1941) are reprinted in this book. Pages 42 gives a history of "The Madison Food Factory." There are photos of the outside and inside of the building on pages 43 and 46. "In a letter dated March 10, 1907, directed to the directors of the Nashville Sanitarium and Southern Union Conference Committee, Ellen G. White wrote: 'It would be a great advantage to the school in Madison if a food factory were put into operation in connection with the work of the school.'

"About this same year a large flakefood factory was built at Edgefield, near what is now known as Edenwold. The people of the South had not yet become conditioned to the eating of health foods; so the factory became a white elephant on the hands of the owners. It passed from hand to hand without success. [One of the operators was Jethro Kloss.] After much discussion on the part of the school faculty a decision was made to purchase the plant, dismantle it and bring it to Madison. It was opened in 1918. The plan was to begin in a small way and to educate the workers, step by step, in the new industry. Mr. and Mrs. Andrew Wheeler were in charge of the work, under the direction of Mrs. Druillard, who had had years of experience in other institutions.

"The purpose of the Food Factory was to produce foods that would be suitable substitutes for meat in the dietary of the vegetarian and others whose health required the elimination of animal products. Consequently most of the foods manufactured were rich in protein. The foods were made from such products as soy beans, peanuts, and gluten. Some of the trade names developed were Zoyburger, Yum, Mock Chicken, Nu-Steak, Not-Meat, Vigoroast, and Ches-O-Soy. A cereal substitute for coffee was Zoy-Koff (p. 42).

"Some of the men who played an important part in the later growth and development of the food factory were Joe Hansen, C.H. Dye, T.A. McFarland, Captain Calvin Bush, Edwin Bisalski, George Norris, Leslie Brooks, John Brownlee, H.M. Mathews and Frank Holland. Of this group, H.M. Mathews and John Brownlee played a very important part in experimentation and development of the foods. Dr. P.A. Webber and Ulma Doyle Register did outstanding work in research to develop better texture, more palatability, and greater nutritional value. Mr. E.M. Bisalski was outstanding in the experimentation and development of the foods. During his term as manager of the Factory, great expansion took place. A practically new plant, with one section four stories in height was constructed in 1941. Car loads of products were shipped to jobbers in Chicago, Boston, New York, and other large distributing centers until Madison products were found in all states and Canada.

"In August of 1964 Madison Foods was sold to Worthington Foods, Inc. Worthington, Ohio. The same products that had been produced in the past were continued to be available under the Madison label and brand names used in the past. Mr. K.P. Stepanske was appointed manager. The food factory was operated on the Madison Campus until 1972 when it was moved to Worthington, Ohio.

Elder Julius Gilbert White, a nationally-known health lecturer, came to Madison and delivered a 10-day series of lectures on health, with the use of illustrated slides. This led to the development of many health institutes and short courses at Madison from 1932-1940.

"Vegetarian Cafeterias: Another type of health work carried on by the Madison school was the operation of a treatment room and vegetarian cafeteria in Nashville. Workers drove back and forth each day from the school to Nashville. It was started in rented quarters in 1917. In 1922, because of advancing rents, a new building was constructed on a permanent location at 151 Sixth Ave. North. A successful work continued for over a decade. Advancing trend of business in the center of the city made the location undesirable and the business closed out and the building was sold. The Birmingham [Alabama] cafeteria was started in 1920."

There are photos of each graduating class. Pages 126-173 are biographical sketches, usually with a photo, of Madison "Personalities," including E.A. Sutherland, Bessie DeGraw Sutherland, Percy Magan, Nellie Druillard, Frances L. Dittes (1891-1979) and her sister Florence, Dr. Ulma Doyle Register, Dorothy Mathews, William Cruzen

Sandborn, and Mable H. Towery. Address: Madison, Tennessee.

1728. Ontario Soya-Bean Growers' Marketing Board. 1986. Ontario Soybeans: Presented with pride by the Ontario Soya-bean Growers' Marketing Board. Chatham, Ontario, Canada: OSGMB. 8 p. Undated. 28 cm.
• ***Summary:*** This color booklet is designed to promote soybeans grown in Ontario, Canada. It discusses: A brief history of soybeans in Ontario, Canada's soybean grading system, Ontario as Canada's 412,000 square mile Golden Bowl of agriculture, where and how soybeans are grown from pedigreed seed in Ontario, end uses for soybeans, details on Canada's 5 soybean grades, graph of protein and oil content of Eastern Canadian soybeans from 1975 to 1985, the Ontario Soya-bean Growers' Marketing Board (established in 1949) and its 25,000 members. Address: Chatham, ONT, Canada.

1729. Sanders, J.L. 1986. Maximum yield and maximum economic yield for soybean. In: S. Shanmugasundaram and E.W. Sulzberger, eds. 1986. Soybean in Tropical and Subtropical Cropping Systems. Shanhua, Taiwan: Asian Vegetable Research and Development Center. xv + 471 p. See p. 189-201. [24 ref]
• ***Summary:*** "This paper discusses the development of the concepts of maximum yield research (MYR) and maximum economic yield (MEY) of soybean in North America and their potential application in the tropics."

"The concepts of MYR and MEY have been widely adopted in North America by researchers and farmers."

"Maximum yields may not be economically practical, but agricultural scientists should not, for supposed economic reasons, fail to attempt to raise the limits on productivity imposed by technology."

"Maximum economic yields can be defined as the corresponding yield level where net profits are maximized in response to increasing inputs or improved production practices."

"'The difference between average yield and maximum economic yield is the world's greatest food reserve.' It also represents the farmer's greatest potential source of economic survival."

"Maximum yields or MEY of soybean can only be achieved through the integrated management or control of the following factors: (1) optimum soil fertility, (2) proper inoculation, (3) higher plant populations, (4) superior cultivar selection, (5) proper row spacing, (6) optimum planing date, (7) proper tillage, (8) good drainage, (9) supplemental irrigation, (10) pest control, (11) crop rotation, (12) multiple cropping, and (13) good harvesting techniques." Address: Potash and Phosphate Inst. of Canada, 555 Burnhamthorpe Road, Suite 507, Etobicoke, ONT, Canada M9C 2Y3.

1730. Shanmugasundaram, S.; Sulzberger, E.W. eds. 1986. Soybean in tropical and subtropical cropping systems: Proceedings of a symposium, Tsukuba, Japan, 26 September–1 October 1983. Revised ed. Shanhua, Taiwan: Asian Vegetable Research and Development Center. xv + 471 p. Illust. Index. 26 cm. [500+ ref. Eng]
• ***Summary:*** Note: The first edition, hardcover, published Oct. 1985, was recalled and discarded, due to errors in the text. Contents: Section 1. Cropping systems. 2. Plant breeding. 3. Management. 4. Diseases and insects. 5. Plant nutrition. 6. Physiology. 7. Economics. 8. Related topics. 59 chapters total. Symposium participants. Author index. Subject index.

In the Foreword, G.W. Sellek, Director General of AVRDC, notes that the proceedings of this symposium were published in two sections. The proceedings of the first section, recently published by the Tropical Agricultural Research Center of Japan (TARC), cover country reports and special research projects. These proceedings cover cropping systems. "In the recent past, research was aimed almost exclusively at raising soybean yields rather than developing cropping systems that provide the stability needed to grow soybeans under high-risk conditions. There also seems to be a greater sense of urgency to integrate cropping systems research with disciplines such as plant breeding, crop management, pest control, and plant nutrition." There is a strong "need to ensure that scientists from a variety of disciplines and backgrounds work together so that their research efforts are well coordinated." Address: AVRDC, Taiwan.

1731. **Product Name:** Vitasoy Tofu Pasta.
**Manufacturer's Name:** Mandarin Enterprises Ltd.
**Manufacturer's Address:** No. 13-12200 Vulcan Way, Richmond, BC, V6V 1S8, Canada.
**Date of Introduction:** 1986?
**New Product–Documentation:** Talk with Michael Weiner. 1987. Dec. 16.

1732. **Product Name:** [VFP Organic Tofu: Fresh Soya Bean Curd].
**Foreign Name:** VFP Tofu Organique: Caillé Frais aux Fèves de Soya.
**Manufacturer's Name:** Victor Food Products, Ltd.
**Manufacturer's Address:** 102 Hymus Rd., Scarborough, ONT, M1L 2C9, Canada. Phone: 416-752-0161.
**Date of Introduction:** 1986?
**Ingredients:** Water, organically grown soya bean, magnesium chloride (chlorure de magnesium).
**Wt/Vol., Packaging, Price:** 500 gm packed in water in molded plastic tray with heat-sealed, peel-off plastic film lid.
**How Stored:** Refrigerated.

**New Product–Documentation:** Label. undated. 5 by 4.25 inches. Orange, green, yellow, and white. Printed on clear plastic film. Written in both English and French.

1733. Haren, Chuck. 1987. The Plenty Canada Soy Project in Dominica. *Plenty Bulletin (Summertown, Tennessee)* 3(1):4. Jan.
• ***Summary:*** A group of Dominicans, who have been working with Plenty Canada on a student/employee basis for 30 months, are organizing the Kari Soy Cooperative to produce soyfoods. Address: Plenty's soy processing education center, Roseau, Dominica, West Indies, Caribbean.

1734. **Product Name:** Vegetarian Nature's Patties Burger with Tofu [Original, or BBQ].
**Manufacturer's Name:** Nature's Path.
**Manufacturer's Address:** 9451 Van Horne Way, Richmond, BC, V6X 1W2 Canada. Phone: 604-278-4584.
**Date of Introduction:** 1987. January.
**Ingredients:** Tofu (organic soybeans, nigari, water), soya protein, sunflower seeds, brown rice, potato, rolled oats, sesame seeds, walnuts, gluten, tomato, onion, pimento, carrots, peppers, celery, sunflower oil, Engevita nutritional yeast, herbs and spices, tamari soy sauce, psyllium seed, molasses, dijon mustard.
**Wt/Vol., Packaging, Price:** Family size 10 x 3.3 oz patties, or 4 x 3 oz patties. Each is a plastic bag.
**How Stored:** Frozen.
**Nutrition:** Per 100 gm: Calories 236, protein 17.4 gm, carbohydrate 22.9 gm, fat 12.0 gm, sodium 185 mg, potassium 185 mg, fiber 1.5 gm.
**New Product–Documentation:** Leaflet. 1987, undated. 8½ by 11 inches, color. "Nature's Path Vegetarian Nature's Patties with Tofu. Contains no animal fats, eggs, dairy products, nitrates, or cholesterol. Succulent non-meat patties. 17% protein." Spot in Soya Newsletter. 1987. 1(4):6. "Made with tofu (17%) and a wide selection of grains and vegetables. Contains no egg or dairy products." Label. 1988. 10 by 5.5 inches. Plastic bag. Red, black, and blue on white with color photo of burger and vegetables. Letter from Rick Furdal, manager. 1988. April 4. They have moved to #170-2540 Simpson Rd., Richmond, BC V6X 2P9. Their restaurant, Woodlands Natural Foods, 2582 West Broadway, Vancouver, BC V6K 2G1 (Phone: 604-733-5411) makes over 100 fresh soyfoods recipes on a rotational basis.

1735. Ontario Soya-Bean Growers' Marketing Board. 1987. Ontario soybeans: International class (Color videotape). Chatham, Ontario, Canada. 4½ minutes.
• ***Summary:*** Ontario soybeans–both oil crushing soybeans and food soybeans–have earned a worldwide reputation for high quality at competitive prices. Shows soybean production in Ontario from the soybean plant to storage and shipping. Address: Chatham, Ontario, Canada.

1736. *SoyaScan Notes.*1987. New Trend: Increase in breeding of soybeans for specialized uses, including special food uses such as tofu, miso, and soy sprouts (Overview). Jan. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** This is part of the larger trend toward value added products and toward tailoring soybeans for export to food manufacturers in Japan. The new breeding work is being done by various countries (such as Canada and the USA), and by many universities, agricultural experiment stations, and private seed breeding companies within the USA. U.S. soyfoods companies will definitely benefit for this trend and should keep close track of new developments.

1737. Hanley, Marge. 1987. Some soybeans good eating for people. Soybeans not all alike; some tastier than others. *News (Indianapolis, Indiana).* Feb. 11. p. 31, 38.
• ***Summary:*** Farmer Ray Bower began championing eating whole edible soybeans in 1977. The 12-14 varieties of vegetable or edible ones are best for human consumption. Black soybeans are his favorite. They taste like red beans except they are more meaty. Soybeans are one of the lowest glycemic index legumes (51). Glycemic index rates foods according to how much and how fast they raise blood sugar after eating. Dr. David J.A. Jenkins at the University of Toronto, a pioneer in studying the effects of foods on blood sugar and cholesterol levels, said Bowers beans looked very good. To reduce gassiness, the biggest problem: Soak for 12 hours, change the soaking water several times, and discard the cooking water. A photo shows Bower.

1738. B.P.; C.R. 1987. L'irrésistible poussée des produits de substitution: Dossier produits laitiers [The irresistible push of substitute products: Dossier on dairy products]. *Marches Agricoles.* Feb. 16. p. 14. [Fre]
• ***Summary:*** Part 1 by B.P. is titled "The debate is launched concerning substitute dairy products." A table lists the following countries: Austria, Belgium, Canada, Denmark, UK, Finland, Japan, Netherlands, Switzerland, and the USA. Column 2 lists substitute products (such as cheese, cream, milk, melorine). Column 3 lists the market share of these products in 1983. And column 4 compares the price of the substitute with the real dairy product. For example, in the USA: imitation cream (non-dairy creamer) has 50% of the market and is less expensive. Imitation cheese has 5% of the market and is 30% less expensive. Flavored milklike drinks have 15% of the market and are 25% less expensive. No imitation products are shown to have a significant market share in Europe.

Part II by C.R. is about CAC in Colmar, its Cacoja subsidiary founded in Jan. 1987, and its Bioforme line of soymilks and soymilk desserts. Address: France.

1739. Hymowitz, Theodore. 1987. Introduction of the soybean to Illinois. *Economic Botany* 41(1):28-32. Feb. [44 ref]

• ***Summary:*** In 1851 the soybean was introduced to Illinois (via California), and thence to the rest of the Corn Belt. The introduction came about through a series of very unusual circumstances. In Dec. 1850 the barque *Auckland* left Hong Kong for San Francisco carrying sugar and other general merchandise. "About 500 miles off the coast of Japan the ship came across a Japanese junk floundering [foundering] on the sea. The [Japanese] crew, consisting of 17 persons, was removed from the junk and taken on board the *Auckland*, which continued on to San Francisco. The Japanese took aboard the *Auckland* some of their belongings and a box containing various items such as a log, chart, compass, gold and silver Japanese coins, etc. The box was presented to Capt. Jennings.

"On 4 March 1851 the *Auckland* arrived at the port of San Francisco. The Japanese were not permitted to leave the ship and were kept in quarantine until 16 March" because of the possibility of spreading disease.

By coincidence, waiting for a passenger ship to take him back to Alton, Illinois, via the Panama overland route, was Dr. Benjamin Franklin Edwards, a wealthy physician from Alton who had come to California in search of gold. "At port while waiting for his ship to take on provisions he probably examined the quarantined Japanese on the *Auckland* and received soybeans, called Japan peas, as a gift (Moore's Rural New Yorker 1853). The next day [March 16] the Japanese were permitted to go ashore." Dr. Edwards left San Francisco on 15 March 1851.

"On shore, because of their unusual dress and country of origin, the Japanese became instant celebrities" and were even guests at a masquerade ball. For details see the following 1851 San Francisco newspapers: *Daily Alta California* March 5, p. 2, col. 5. *Evening Picayune* March 5, p. 2. col. 5; March 17, p. 2, col. 5. *San Francisco Daily Herald* March 5, p. 3, col. 2; March 18, p. 2, col. 6.

"On April 29, 1851 Dr. Benjamin Franklin Edwards returned to Alton, Illinois carrying soybean seeds in his personal possessions." [Note that he took a first-class ship to the Isthmus of Panama, went overland by pack mule, then caught another first-class ship that took him up the Mississippi River to St. Louis, Missouri–a 6-week trip. The first transcontinental railroad, with its western terminus in Sacramento, was not completed until 14 years later, in May 1869].

In Illinois, Dr. Edwards gave the seeds to Alton businessman Mr. John H. Lea, who planted them in his garden in the summer of 1851 (A.H. Ernst. 1853. *Journal of the New York State Agricultural Society).* These events took place 3 years prior to the famous introduction of soybeans from Japan to the United States by the Perry Expedition.

After Lea harvested his soybean seeds, he distributed them to various places. Mr. J.J. [sic, J.R.] Jackson of Davenport, Iowa, wrote in 1854 that he had grown soybeans in 1852 and 1853; he was the first person to report growing soybeans in Iowa, now a major soybean producing state.

Since there was no local horticultural society in Alton, Illinois, Lea sent soybean seed to the Cincinnati Horticultural Society. In 1852 Mr. Andrew H. Ernst, a well-known horticulturist, planted and multiplied these seeds in his nursery, "Spring Garden" near Cincinnati, Ohio [3 citations]. After the 1852 harvest, Ernst sent soybean seeds to the New York State Agricultural Society, the Massachusetts Horticultural Society, and the U.S. Commissioner of Patents. Those organizations sent soybean seed to dozens of farmers throughout the United States. In 1855 "T.V.P." of Mount Carmel, Ohio, reported that he had cultivated soybeans "for the last three years and have disseminated [them] from Canada to Texas." "Most probably he received his soybean seeds from A.H. Ernst. His evaluation of soybeans as a potential new crop was amazingly astute..." (See T.V.P. 1855).

"Thus, by the end of 1854 the soybean seeds brought by Dr. Benjamin Franklin Edwards in 1851 from San Francisco to Alton, Illinois, were multiplied, disseminated, and evaluated by farmers throughout the United States."

In 1854, when Commodore Matthew Perry's Expedition opened Japan to western trade, the expedition's surgeon, Dr. Daniel Green, observed that the Japanese grew a particular kind of bean called the Japan pea (i.e. soybean) (Perry 1856, vol. 2, p. 85). In mid-1854 the expedition's agriculturist, Dr. James Morrow, obtained soybean seeds and sent them to the Commissioner of Patents, which distributed the seeds to farmers. "Thus from 1855 onward it is difficult to distinguish between soybean seed sources in farmers' reports. Did their soybean seeds originate from the Illinois accession or the Perry Expedition; perhaps they grew soybeans from both sources."

Note 1. This document contains the earliest date seen (June 2007) for soybeans in California (4 March 1851). It also contains the earliest date seen for soybeans in Illinois (29 April 1851), or the cultivation of soybeans in Illinois (summer 1851) (one of two documents). And it contains the earliest date seen for soybeans in Iowa, or the cultivation of soybeans in Iowa (1852).

Note 2. A longer version of this story by Robert Lee Zimmer titled "Scientist Turns Detective, Solves Soybean Mystery," appeared as an Associated Press Wire (14 Aug. 1987), which was widely syndicated.

Note 3. Talk with Ted Hymowitz. 1994. May 29. Benjamin Franklin Edwards was a founder of Shurtleff College in Alton, Illinois. Address: Crop Evolution Lab., Dep. of Agronomy, Univ. of Illinois at Urbana-Champaign, Urbana, IL 61801.

1740. Mercer, Nina J.H.; Carroll, K.K.; Giovannetti, P.M.; Steinke, F.H.; Wolfe, B.M. 1987. Effects on human plasma lipids of substituting soybean protein isolate for milk protein in the diet. *Nutrition Reports International* 35(2):279-87. Feb. [23 ref]
• ***Summary:*** 33 healthy adult volunteers were studied over a 12 week period during which they continued their usual diet. Each volunteer consumed 500 ml of 2% cow's milk for 6 weeks and 500 ml of an isolated soy protein beverage in a crossover design. Both beverages contained the same level of protein and 2% butterfat This simple dietary change produced a significant shift in the animal:plant protein ratio for 2.44 to 1.08. Although it had no significant effect on total plasma cholesterol (reduced by 5.7%), VLDL cholesterol decreased significantly. The authors concluded that "consumption of beverages based on soy protein isolate could assist in the dietary management of individuals with elevated fasting serum cholesterol levels." Address: Depts. of Biochemistry, Medicine, and Home Economics (Bresica College), Univ. of Western Ontario, London, Ontario, Canada.

1741. **Product Name:** Tofu, Pressed Tofu, Herbal Tofu, and Tempeh.
**Manufacturer's Name:** Okanagan Soyfoods.
**Manufacturer's Address:** Lumby, BC, Canada. Phone: 604-547-2257.
**Date of Introduction:** 1987. February.
**New Product–Documentation:** Talk with company. 1989. March 7. Talk with Greg Lundh. 1989. April 28. This company went out of business 10 days ago. Greg Warry of BC started the company. He bought a lot of equipment, then couldn't make the payments. He sold the company in the autumn of 1988 to his ex-partner. Several people ended up running it; a man named John from California, who had an Oriental wife, and a lady named Bee (Beatrice Berry?). Talk with a lady who hopes to buy the company. 1989. Oct. 30. Okanagan Soya Foods, located in a small place out in the country and run by Beatrice Berry, now makes about 2,000 cakes/month of tofu. The new owners want to make about 2,000 cakes/week when they start.

1742. McDermott, Lawrence. 1987. Guatemala [and the Plenty Soy Project]. *Plenty Canada News (Lanark, Ontario, Canada).* Winter 1986-87. p. 4-5.
• ***Summary:*** Larry visited the Plenty Soy Project in Guatemala in March 1985 and found the soy dairy still in good repair. This was Plenty's first country project in 1976-80. Villagers wanted the soy center reopened. Address: Executive Director, Plenty Canada, ONT.

1743. *Plenty Canada News (Lanark, Ontario, Canada).*1987. Plenty in the Caribbean [Soy projects on Jamaica, Dominica, and St. Lucia]. Winter 1986-87. p. 7-8.
• ***Summary:*** Plenty has active, pioneering programs with soyfoods processing, education, and soybean growing on these three Caribbean islands. On St. Lucia, for example, the Soya Centre, which opened in July 1985, has been processing up to 300 lb/week of soybeans and serves 200-300 people daily. Address: R.R. 3, Lanark, ONT, K0G 1K0, Canada.

1744. **Product Name:** [Micronized Soybeans].
**Foreign Name:** La Fève Soya Micronisee.
**Manufacturer's Name:** Semences Prograin Inc. (Micronisation Canada Inc.).
**Manufacturer's Address:** St-Cesaire, Quebec, J0L 1T0, Canada.
**Date of Introduction:** 1987. March.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**Nutrition:** Protein 37-38%, water 9-10%, oil 18-19%, fiber 4.5%...
**New Product–Documentation:** Ad in *La Terre de Chez Nous.* 1987. March 19. p. 35. "le soya micronise au Quebec."

1745. Saperstein, Hilary. 1987. Kosher "ice cream" fine with or without meat. *Jewish Journal (Fort Lauderdale, Florida).* April 23.
• ***Summary:*** "David Mintz grew up in an Orthodox Jewish family in New York. He attended Brooklyn College, where he majored in business. He initially joined his family's fur business. Then he founded a small grocery store in Mountaindale, New York. The population was 18 in the winter, thousands in the summer. One day he was reading a nutrition magazine and he read about tofu. Tofutti is now available in the Soviet Union, Japan, Australia, Canada, Hong Kong, and Singapore."

1746. **Product Name:** Tofu Franks.
**Manufacturer's Name:** MGM Brands.
**Manufacturer's Address:** 59 Howden Rd, Unit H., Scarborough, ONT, M1R 3C7, Canada. Phone: 416-752-6600.
**Date of Introduction:** 1987. April.
**New Product–Documentation:** Talk with company. 1988. March 2. He says Stephen Yu of Victor Foods is out of business! Tofu Masters was an interim company name.

1747. **Product Name:** [SoftShakes. Natural Non-Dairy Soy Beverage (Vanilla, or Light Chocolate)].
**Foreign Name:** Boisson Naturelle au Soya.
**Manufacturer's Name:** Les Aliments Tarasoy Ltée (Tarasoy Foods Ltd.).
**Manufacturer's Address:** 3455 Local D rue Isabelle, Brossard, QUE J4Y 2R2, Canada. Phone: 514-659-6586.
**Date of Introduction:** 1987. May.

**Ingredients:** Incl. soymilk, corn syrup solids instead of cane or beet sugar.
**Wt/Vol., Packaging, Price:** 250 ml Pure-Pak carton. Retails for $1.19.
**How Stored:** Refrigerated.
**New Product–Documentation:** Spot in Food in Canada (Toronto, ONT). 1987. May.

Talk with Ian Walker of Canada. 1995. May 15. The name of this company is now Les Aliments Tarasoy, run by Helen Wan, who speaks good English and broken French. Address: 3455 Local D rue Isabelle, Brossard, QUE J4Y 2R2, Canada. Phone: 514-659-6586. Fax: 514-659-6578. They now make soymilk, tofu, and soy cheese.

Talk with Helen Wan, sales manager. 1995. May 26. This company was founded in Dec. 1986 by a number of Chinese-Canadians, who own shares. Her brother, Billy Chin, is the president and one of the main founders. Softshake was one of their first products, introduced in the spring of 1987.

1748. **Product Name:** [Regular Tofu, Herb Tofu, and Tofu with Dehydrated Vegetables].
**Foreign Name:** Tofu Nature, Tofu Fines Herbes, Tofu au Legumes.
**Manufacturer's Name:** Les Aliments Tarasoy Ltée (Tarasoy Foods Ltd.).
**Manufacturer's Address:** 3455 Local D rue Isabelle, Brossard, QUE J4Y 2R2, Canada. Phone: 514-659-6586.
**Date of Introduction:** 1987. May.
**Wt/Vol., Packaging, Price:** 450 gm vacuum pack.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Helen Wan, sales manager. 1995. May 26. This was one of the company's first products, launched in the spring of 1987. The vacuum packaging gives the product a longer shelf life. Regular (plain) tofu is now the company's number 2 best-selling product.

1749. Tremblay, Yvon. 1987. Le tofu en restauration et institution [Tofu in restaurants and institutions]. *Restocafe–Quebec* 1(8):5. May. [Fre]
• ***Summary:*** The author argues for wider use of tofu in these places. Address: Quebec, Canada.

1750. Schurman, Hedda. 1987. Re: Sri Lanka project proposal. Letter to William Shurtleff at Soyfoods Center, June 1. 1 p. Handwritten, with signature on letterhead.
• ***Summary:*** "Enclosed is our order form and a copy of the Sri Lanka project proposal you had requested. The project will hopefully get fully underway in July or August 1987. We have had some delays due to the problems in northern Sri Lanka. We will no longer be working in Vavuniya" [in north central Sri Lanka]. Address: Plenty Canada, R.R. 3, Lanark, ONT, K0G 1K0, Canada. Phone: 613-278-2215.

1751. Central Soya Co., Inc. 1987. Central Soya signs agreement with Biotech Laboratory (News release). Fort Wayne, Indiana. 3 p. June 8.
• ***Summary:*** The multimillion dollar agreement is with Bio Techniques Laboratories, Inc. of Redmond, Washington and includes options for an equity position at future dates. Under terms of the agreement, Central Soya will fund and direct research activity at BTL. Steven N. Haye, formerly Manager of Central Soya of Canada, Ltd. has been named General Manager. Address: Fort Wayne, Indiana.

1752. Muir, A.; Kalnins, D. 1987. False advertising resulting in infant malnutrition. *Canadian Medical Association Journal* 136:1274. June 15. [5 ref]
• ***Summary:*** Documents the case of an infant who, at 6 weeks of age, was put on a soybean-based product called Eden-soy. "The health food retailer had supplied the parents with a 'professional looking', colorful monograph that advertised the drink as 'good for babies' and a 'quality substitute' for breast milk. Their family physician had endorsed the product after a cursory inspection of the brochure, and the infant was exclusively fed Eden-Soy, without vitamin supplementation." Four months later he had become wasted because the formula did not contain enough calories. He also had developed night blindness and rickets because the supplement did not contain sufficient quantities of vitamins A and D. Address: Div. of General Pediatrics, Dep. of Pediatrics, and Dep. of Food Services, Hospital for Sick Children, Toronto, ONT, Canada.

1753. *Soybean Update.*1987. Canada is willing to use grain production restraint if other major exporting countries follow suit. June 15. p. 3.
• ***Summary:*** "Canada also willing to re-evaluate all its subsidy programs, including the 'crow' benefit rail subsidy, objected to by the U.S."

1754. Johnson, Kirk. 1987. Hidden fats in whole foods diets. *East West.* June. p. 62-68.
• ***Summary:*** A full-page table (p. 65) titled "How the substitutes stack up" shows total fat and serving size for the following categories: Dairy products. Substitute dairy products. Meat. Substitute meat products. Frozen dinners. Miscellaneous. The substitute dairy products include: Tofu Cream Chie (21st Century). Soya Kaas (soy cheese from American Natural Snacks). Tofutti (Tofu Time). Le Tofu (Brightsong Foods). Ice Bean (Farm Foods). Tofu, silken (Nasoya). Tofu, soft (Nasoya). Tofu, firm (Nasoya). Soybean margarine (Willow Run). Soymilk (Edensoy). Soymilk (Health Valley). Soymilk (Vitasoy).

Substitute meat products include: Fakin' Bacon (Tempehworks). Tofu Wieners (Yves). Tofu Pups (Tempehworks). Vegie Burger (Bud, Inc.). Tofu Burger

(Bud, Inc.). Gardenburger (Wholesome & Hearty). Tofu Sausage (Vegetable Protein Co.). Tempeh, 3-grain (Tempehworks). Seitan ("wheat meat").

Meatless frozen dinners include: Tofu Lasagna (Legume). Meatless Pepper Steak with Kofu & Noodles (Legume). Sweet and Sour Tofu (Legume).

Miscellaneous products include: Nasoyannaise (Nasoya Foods). Salad dressing, Creamy Tofu (Nasoya). Miso.

1755. *Toyo Shinpo (Soyfoods News).*1987. Pari de mitsuketa honmono no tôfu. Munôyaku daizu tsukai parikko ni apiiru [Real tofu made in Paris with organically-grown soybeans and it appeals to the Parisians]. July 31. p. 13. [Jap; eng+]
• ***Summary:*** Mr. Noboru Sakaguchi, age 59, has a tofu shop located in Champaigny–only 20 minutes away from Paris. The shop opened 3 years ago and is called Daizou. The majority of the employees are French. Sakaguchi employs a Japanese plant manager, Mr. Takatashi Hiroyama, age 39. Mr. Sakaguchi also has a health foods store and restaurant, Le Bal en Bois. This is the parent company of Daizou. They produce about 1,000 cakes of tofu (1 cake = 380 gm) a day. Of these, 200 are made with organically grown soybeans and are vacuum packed. The company also uses regular soybeans from Canada and organically grown ones from the U.S. They use nigari in their tofu manufacturing process. They have been experimenting with silken tofu (kinugoshi) and have done market studies with some newly developed soymilk mayonnaise. Their tofu sells for 7 French francs per cake wholesale, and 9-12 francs retail. They sell their organic tofu for the same price as the regular cakes as a method of introducing it into the market. Right now, their big enemy is water that is too alkaline.

1756. American Soybean Association. 1987. Soya Bluebook '87. St. Louis, Missouri: American Soybean Assoc. 270 p. July. Index (bold face type indicates advertiser). 22 cm.
• ***Summary:*** This is the last issue of the *Soya Bluebook* published by the American Soybean Association. The section titled "Soy statistics (tables, charts, graphs) (p. 185-244) is a rich source of information, worldwide.

Before page 199 are two fold-out color maps (color coded by county): U.S. soybean production 1985, and U.S. soybean acreage 1985.

A full-page table (p. 235) shows U.S. exports of whole soybeans, 1982-1986–Volume of exports (in metric tons) by country of destination and total value each year. Region and country of destination: North America: Canada, Mexico, other, total. South America: Brazil, Colombia, Ecuador, Peru, Venezuela, other, total. Europe and Russia: Belgium & Luxembourg, Czechoslovakia, Denmark, France, Germany (West), Germany (East), Greece, Ireland, Italy, Netherlands, Norway, Portugal, Romania, Soviet Union, Spain, Switzerland, United Kingdom, Yugoslavia, other, total. Middle East. Africa. Asia: China–PRC, China–Taiwan, India, Indonesia, Japan, Korea (South), Pakistan, other, total. Australia & Oceania. Other unidentified. Grand total. Value of exports–total (million $). Address: P.O. Box 27300, St. Louis, Missouri 63141.

1757. Del Valle, Amado. 1987. Update on the Plenty Soy Project in Guatemala. San Bartolo, Solola, Guatemala. 2 p. Unpublished manuscript. [Eng]
• ***Summary:*** Thanks to the interest of the executive director of Plenty, Canada, the project reinitiated its activities in the middle of 1985. The three objectives are: 1. Agricultural, to develop and teach Guatemalan farmers to grow suitable soybean varieties. 2. Educational, to teach families and organizations soyfoods nutrition and recipe preparation. 3. Industrial, running the soy dairy in the community of San Bartolo, and making soymilk, tofu, soy ice cream, soy flour and soy coffee. From Jan. 1 to July 22, 1987 the soy dairy has produced 3,777 gallons of soymilk, 3,308 pounds of tofu, 865 gallons of soy ice cream, and 5,600 paletas (ice cream sticks), that have been sold in 4 areas of Guatemala. Address: Solola, San Bartolo, Guatemala.

1758. Lemieux, Sylvie. 1987. Le tofu à tout faire [A taste for tofu]. *Circulaire (La) (Quebec, Canada).* Aug. 22. [Fre; Eng]
• ***Summary:*** "Tofu is gradually gaining favor here in Quebec." Address: Quebec, Canada.

1759. Bernard, Richard L.; Juvik, Gail A.; Nelson, Randall L. 1987. USDA soybean germplasm collection inventory [1898-1944]. Vol. 1. *INTSOY Series* No. 30. vi + 80 p. Aug. [20 ref]
• ***Summary:*** The title page states: "Information on the origins of soybean and wild soybean germplasm including introduced and old United States and Canadian domestic varieties and foreign and domestic strains identified by FC and PI numbers up to PI 150.000 acquired through 1944 and maintained by the United States Department of Agriculture." Note: PI can stand for either "Plant Inventory" or "Plant Introduction."

Contents: Foreword. Curator staff. The USDA soybean germplasm collection: Introduction, history, PI numbers, divisions of the collection, maintenance of the collection, statistical summaries, United States and Canadian varieties, foreign introductions, appendixes, abbreviations (EAS, ARS, ES, INTSOY, USDA, and USRSL).

Statistical tables: 1. Number of strains by maturity group (MG, p. 4). This table is divided vertically into north (MG 000 to IV), south (MG V to X), and wild soybeans. There are columns for: Old domestic varieties (before 1946), FC strains (mostly from USA), PI strains to 150,000, and total. The three maturity groups with the greatest number of strains are III (479), II (436), and IV (376)–all in the north.

2. Number of strains by country of origin (p. 5). This table is divided vertically into old domestic varieties (before 1946), FC strains, PI strains to 150,000, grand total, and wild soybeans to PI 150,000. The countries that have contributed the most strains to the U.S. collection are: China 871, Korea 335, and Japan 288.

3. Number of PI strains by year from 1898 to 1945 (p. 6). Columns show: Year. Plant Inventory volume. Initial PI designation for all crops. Number of soybean PI designations plus number of domestic varieties derived from them. Number of strains in collection each year. Accumulative total. A total of 7,867 PI soybean strains were introduced out of a total 150,209 plant introductions (about 5.2% of the total was soybeans). 413 domestic varieties were derived from these soybean introductions. The most active years for soybean introduction were 1926-1932. In 1954 there were 1,524 soybeans in the collection, or only 19.4% of those introduced with PI numbers. The rest were lost or discarded.

4. Historical summary of soybean introduction, in four time periods (p. 7): 1898-1923 (26 years, 40 strains/year). 1924-1928 (5 years, 375 strains/year). 1929-1932 (4 years, 1,193 strains/year). 1933-1944 (12 years, 14 strains/year).

5. Soybean instructions from major collecting expeditions (p. 7). Frank N. Meyer in China, Korea, and USSR from 1906 to 1917 collected 114 soybean PI strains–including 1 wild soybean in 1913. P.H. Dorsett in China from 1924 to 1927 collected 969 PI strains–including 5 wild soybeans in 1925. P.H. Dorsett and W.J. Morse in China, Korea, and Japan from 1929 to 1932 collected 4,451 PI strains.

6. Source and identification of individual strains: Old domestic varieties (p. 8-19). 7. Source and identification of individual strains: FC [Forage Crop] strains (p. 20-23). 8. Source and identification of individual strains: PI strains (by year, 1907-1944, to PI 150.000; p. 24-59). A sample entry (p. 34) states: Collected in Japan by P.H. Dorsett and W.J. Morse, USDA Agricultural Explorers, in April to June 1929. Obtained at Nishigahara, Tokyo, on April 15. PI 80.466. Maturity Group V. 32 seeds. 'Okura Maru Daizu,' originally from Hokushu, used candied and the product is called 'Mimame' [sic, Nimame]. Note: Right below this is PI 80.468. Tsurunoko Daizu.

Source and identification of individual strains: Wild soybean strains (by year, 1925-1940, to PI 150.000).

Appendixes: 1. PI strains from which old domestic varieties were derived. 2. Old domestic varieties introduced without PI designation. 3. Old domestic varieties of hybrid or unknown origin. 4. FC strains summarized by country and year. 5. PI strains summarized by country and year: 1898 to 1944 (PI 1 to PI 150.000). 6. Chinese location names. 7. Korean location names.

The source, date, maturity group, and other information for the following 191 old domestic varieties (all of which are still in the USDA soybean germplasm collection) is given (p. 8-19): Acadian, Agate, A.K. [FC 30.761], A.K. [Kansas], A.K. (Harrow), Aksarben, Aoda, Arisoy, Arksoy, Arlington, Armredo, Austin, Avoyelles, Bansei, Bansei [Ames], Barchet, Bavender Special A, B, C, Biloxi, Blackeye, Black Eyebrow, Boone, Burwell, Capital, Cayuga, Charlee, Cherokee, Chestnut, Chief, Chusei, Clemson (from Nanjing, China in 1927; released in 1939), Cloud, CNS, Columbia, Creole, Delsoy, Delsta, Dixie, Dunfield, Earlyana, Early White Eyebrow, Easycook, Ebony, Elton, Emperor, Etum, Flambeau, Fuji, Funk Delicious, Funman, Gatan, Georgian, Giant Green, Gibson, Boku, Goldsoy, Granger, Green and Black, Guelph (from Japan in 1889 by Prof. W.P. Brooks, Massachusetts AES; called 'Medium Green' from 1903 to 1907), Habaro, Haberlandt, Hahto, Hahto [Michigan], Hakote, Harbinsoy, Harman, Harrel, Hayseed, Hidatsa, Higan, Hokkaido, Hollybrook, Hongkong, Hoosier, Hurrelbrink, Illington, Illini, Ilsoy, Imperial, Improved Pelican, Jefferson, J.E.W. 45, Jogun, Jogun [Ames], Kabott, Kagon, Kanro, Kanum, Kingston, Kingwa, Korean, Kura, Laredo, Lexington, Lincoln, Linman 533, Louisiana Green, Luthy, Macoupin, Magnolia, Mamloxi, Mammoth Yellow, Mamotan 6640, Mamredo, Manchu, Manchu [Lafayette], Manchu [Lafayette] B, Manchu [Madison], Manchu–Hudson, Manchu–Montreal, Manchu 3, Manchu 606, Manchu 2204, Manchukota, Manchuria, Manchuria 13177, Manchuria 20173, Mandarin, Mandarin (Ottawa), Mandarin 507, Mandell, Manitoba Brown, Mansoy, Medium Green, Mendota, Midwest, Miller 67, Mingo, Minsoy, Missoy, Monetta, Morse, Mukden, Nanda, Nansemond, Nela, Norredo, Norsoy, OAC 211, Ogden, Ogemaw, Old Dominion, Ontario, Osaya, Otootan, Pagoda, Palmetto, Pando, Patoka, Patterson, Peking, Peking S, Pennsoy, Pine Dell Perfection, Pluto, Pocahontas, Poland Yellow, Portugal, Ralsoy, Richland, Roanoke, Rokusun, Rose Non Pop, S-100, Sac, Sanga, Sato, Scioto, Seminole, Seneca, Shingto, Shiro, Sioux, Sooty, Sousei, Soysota, Tanner, Tarheel Black, Tastee, Tennessee Non Pop, Toku, Tokyo, Tortoise Egg, Viking, Virginia, Virginia S, Volstate, Waseda, Wea, White Biloxi, Willomi, Willomi B, Wilson, Wilson B, Wilson-Five, Wilson-Five B, Wilson-6, Wing Jet, Wisconsin Black, Wolverine, Woods Yellow, Yellow Marvel, Yelredo.

For each of these 191 varieties, a table gives the following information: Variety name, maturity group, source and other information [such as country of origin and year of introduction to the USA], prior designation [usually a P.I. number], year named or released, developer or sponsor, literature. The last column refers to a list of 20 bibliographic references in chronological order (from 1907 to 1977) on p. 18-19. Address: Univ. of Illinois.

1760. Bernard, Richard L.; Juvik, Gail A.; Nelson, Randall L. 1987. USDA soybean germplasm collection inventory.

Vol. 1: History and divisions of the collection (Document part). *INTSOY Series* No. 30. vi + 80 p. Aug. See p. 1-2.
• ***Summary:*** History (p. 1): "Prior to 1949 no consistent attempt was made to preserve soybean germplasm, and many introductions and old domestic varieties were discarded. The Soybean Germplasm Collection was established in 1949 with the objective to collect and maintain all significantly different soybean strains from throughout the world, with emphasis on the landraces of eastern Asia, where the soybean originated. The Collection was initially assembled by three USDA agronomists, J.L. Cartter and L.F. Williams at the U.S. Regional Soybean Laboratory, Urbana, Illinois, and E.E. Hartwig at Stoneville, Mississippi.

"When the Collection was established in 1949, all available strains were obtained from the USDA and state and Canadian agricultural experiment stations. A total of 1,524 PI strains or domestic varieties derived from PI strains were recovered and are now in the collection. This compares with 7,867 introductions made from 1898 to 1944."

Divisions of the Collection (p. 1): It is divided into six parts: "1. Domestic (United States and Canadian) varieties. Volume 1 includes introduced varieties named in the United States or Canada and other varieties developed before 1945.

"2. FC strains. These include foreign introductions and domestic strains, many of unknown origin, and are identified by a series of numbers assigned by the former Forage Crops Section of the USDA. This series was used until about 1957.

"3. PI strains. These consist of foreign introductions identified by numerical designations assigned by the Plant Introduction Office of the USDA. Strains up to PI 150.000 (introduced prior to 1945) are included in this volume.

"4. Wild soybeans. These are also identified by PI numbers, and strains up to PI 150.000 are included in Volume 1.

"5. Genetic collection.

"6. Perrenial *Glycine* species.

"Division 5 and 6 are not included in this publication. Information on them is available from the curator at Urbana." Address: Univ. of Illinois.

1761. *J. of the American Oil Chemists' Soc.*1987. World fats & oils report: Higher oil prices predicted. 64(8):1058-59, 1062, 1064, 1066-78, 1080-85. Aug. [1 ref]
• ***Summary:*** Statistics and general information on vegetable oil production, consumption, and trends in the following countries is given: Australia, Austria, Brazil, Canada, China, Czechoslovakia, Egypt, Finland, France, West Germany, East Germany, Hungary, India, Indonesia, Italy, Ivory Coast, Japan, Korea, Malaysia, Mexico, the Netherlands, Nigeria, Norway, Pakistan, Peru, the Philippines, Poland, Soviet Union, Spain, Sweden, Turkey, Uruguay, Venezuela, and Yugoslavia.

Tables include: 1. World production and consumption of major vegetable and marine oils. 2. Top 10 producers of major vegetable oils (USA, EEC 12 countries, Malaysia, China, Brazil, USSR, Indonesia, East Europe, Argentina, India. The oils: soybean, cottonseed, sunflowerseed, rapeseed, coconut, palm kernel, and palm oil). 3. Top 8 exporters of major edible oils (Malaysia, EEC 12 countries, Argentina, Philippines, USA, Singapore, Brazil, Indonesia). 4. Top 8 importers of major edible oils (EEC 12 countries, Africa, India, USA, Singapore, USSR, China, Pakistan). 5. Margarine, compound fat/shortening, and salad oil production for selected countries (USA, USSR, Japan, India, Pakistan, Netherlands, West Germany, UK, Canada, Poland, Brazil).

1762. **Product Name:** Chocolate Milk (Soymilk).
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. August.
**Ingredients:** Soya milk, chocolate powder, sugar, salt.
**Wt/Vol., Packaging, Price:** Sold fresh over the counter in a small cup at Plenty Canada Soya Food Centre for Rs. 2/-.
**How Stored:** Unrefrigerated and perishable.
**Nutrition:** 3.2–3.4% protein.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre and talked with Mr. H.G. Jayatissa, project manager, and Miss Geethanjali Jayasena, soya technician.

The eleven products sold at this location were developed either by Plenty Canada or the Soya Foods Research Centre (SFRC) at Gannoruwa. In addition to these products, Plenty also sells products made by the SFRC, by Kundesale Cereal Factory, by Jane Soya Products, by C. Siriwardene, and by Kusuma Godalidde, plus soya beans (whole and split).

Since opening officially in September 1987, sales have increased by 30% a month. Commercial dried tempeh production is scheduled for May 1988 by a producer in collaboration with Plenty. Plans are underway for a Colombo Soya Food Centre and production facility as well as island-wide promotion of soya foods, and various activities to support small and medium scale soya food entrepreneurs. The soya promotion project will continue for a minimum of 4 years. Enquiries should be made to Ian Taylor, project director, Plenty, Box 95, Kandy, or the Plenty Canada head office at RR#3, Lanark, Ontario, K0G 1K0, Canada.

The company uses about 500 kg/month of soybeans (purchased from sellers/boutiques in Kandy for Rs. 9-9/50

per kg), 375 kg/month of soy flour (purchased from SFRC at Gannoruwa for Rs. 12/kg or from Kundesale for Rs. 18/kg), and 108 kg/month of soy flakes (purchased from Kundesale Cereal Factory for Rs. 22/kg). Consumers buy the products above all for their nutritional value, but also for good taste and economy.

1763. **Product Name:** Fresh Tofu.
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. August.
**Ingredients:** Soya milk, magnesium sulphate.
**Wt/Vol., Packaging, Price:** 200 gm plastic bag. Retails for Rs. 3/-.
**How Stored:** Unrefrigerated and perishable.
**Nutrition:** 8% protein.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre. For details see Chocolate Milk (Aug. 1987).

1764. **Product Name:** Ice Cream [Chocolate, Banana, Pineapple].
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. August.
**Ingredients:** Soya milk, corn oil, sugar, vanilla, salt. Plus chocolate powder, or fresh pineapple and pineapple essence, or fresh bananas.
**Wt/Vol., Packaging, Price:** Sold in plastic tubs to eat in or take out. Rs. 4/- each.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre. For details see Chocolate Milk (Aug. 1987).

1765. **Product Name:** Cutlets (Made with Okara).
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. August.
**Ingredients:** Potatoes, soya milk residue [okara], onions, chilies, spices, salt, biscuit powder.
**Wt/Vol., Packaging, Price:** Each oval ball, 1 inch in diameter, retails for Rs. 1/5.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre. For details see Chocolate Milk (Aug. 1987). Adapted from a local recipe for a deep-fried food.

1766. **Product Name:** Accras (A Small, Deep-Fried Meatless Okara Burger).
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. August.
**Ingredients:** Soya milk residue, carrots, leeks, spices, curry leaves, white wheat flour.
**Wt/Vol., Packaging, Price:** Each patty, 2 inches in diameter, sells for Rs. 1/50.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre. For details see Chocolate Milk (Aug. 1987). Adapted from a local recipe for a deep-fried food.

1767. Praskin, Laurie. 1987. Plenty, The Farm, and the Guatemala Soy Dairy (Interview). *SoyaScan Notes.* Sept. 12. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** All the money for the Soy Dairy part of the Guatemala Project came from CIDA (the Canadian International Development Agency) through Plenty Canada. In those days Plenty USA and Plenty Canada were not seen as different. The volunteers were all from Plenty USA. The division between the two Plenty organizations started in 1982 after the Fri boat incident (Stephen's Hippy Navy) and Caribbean venture. Plenty Canada had to answer for everything that was done, and take responsibility for how their funds were spent. CIDA wants to give its money to Canadian groups and keep control in Canada. The Fri was a bad promotional idea. Now relations between Plenty Canada and USA are good again. Plenty USA will eventually be centered in Oakland (Peter Schweitzer). Plenty Canada has a multi million dollar a year budget; Plenty USA's budget is about $200,000. Address: 17969 Oak Dr., Los Gatos, California 95030.

1768. Keith L. Lippert Assocs. 1987. Tofutti Brands Inc. and Aur-Mark Holdings Co. Ltd. announce a "master developer" agreement for Canada (News release). 136 East 57th St., New York, NY 10022. 2 p. Sept. 21.
• ***Summary:*** Aur-Mark, a newly formed food and beverage distributor in Toronto, Canada, will become the exclusive manufacturer, distributor, and Master Franchisee for Tofutti Brands products in Canada. This agreement, which commenced on 30 June 1987, is expected to generate $300,000 to $500,000 in additional revenues in fiscal 1988. Address: New York.

1769. *Plenty Bulletin (Summertown, Tennessee).*1987. Business school grads help build soy dairy in the Caribbean. 3(3):1-4. Sept.

• ***Summary:*** A food processing kitchen and soy cafe was constructed on the northeast coast of Dominica on the Carib Indian Reserve by locals with help from 8 MBA volunteers from the Wharton School of Business [at the Univ. of Pennsylvania in Philadelphia]. Carib farmers are now selling soybeans to the Plenty Soy Center in Roseau, Dominica's capital. Each week the Center produces 100 lb of tofu, 25 lb of soysage, 20 lb of tempeh, 30-50 gallons of soy ice cream, and 30-40 gallons of soymilk. Most of these soyfoods are sold through two co-ops that are managed by Plenty-trained Dominican staffs: the Ebeneezer Women's Co-op in Marigot and the Kairi Soy Co-op on the outskirts of Roseau.

At the Soy Development Center in Roseau, Plenty Canada offers 2 six-week classes each year in home, village, or small industrial scale soyfoods processing. The staff also conducts two 16-hour training courses on other parts of the island mainly for home preparation of soyfoods. Fifteen farmers are growing ¼ acre each of soybeans. In Jamaica, Country Farmhouse Lifeline, a soyfoods production center in Kingston, makes 150 lb/week of tofu.

1770. **Product Name:** Fresh Tempeh.
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. September.
**Ingredients:** Split soybeans, tempeh culture.
**Wt/Vol., Packaging, Price:** 300 gm plastic bag retails for Rs. 4/50.
**Nutrition:** 19% protein.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre. For details see Chocolate Milk (Aug. 1987).

1771. **Product Name:** Tofu Roti (Tofu & Vegetable Filling Rolled in a Chapati).
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. September.
**Ingredients:** Roti (Chapati): White wheat flour (3/4), soya flour (1/4), vegetable oil, salt. Filling: Potatoes, tofu, onions, chilies, spices, curry leaves.
**Wt/Vol., Packaging, Price:** Each roll, 12 inches long, retails for Rs. 4/-.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre. For details see Chocolate Milk (Aug. 1987). Adapted from a local recipe.

1772. **Product Name:** Wattalappan (Soymilk Pudding).
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. September.
**Ingredients:** Soya milk, jaggeri (unrefined sugar), vanilla, eggs, salt, spices.
**Wt/Vol., Packaging, Price:** Served in a small cup. Retails for Rs. 4/-.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre. For details see Chocolate Milk (Aug. 1987). Adapted from a local recipe.

1773. **Product Name:** Vegetarian Wheat Cutlets (Seitan) [Garlic, Ginger, or Plain]. Renamed Wheatlets.
**Manufacturer's Name:** Sooke Soy Foods Ltd.
**Manufacturer's Address:** 2625 Otter Pt. Rd., R.R. 2, Sooke, BC, Canada V0S 1N0. Phone: 604-642-3263.
**Date of Introduction:** 1987. September.
**Ingredients:** Ginger: Gluten from organic wheat, water, shoyu (soybeans, wheat, salt), herbs and spices, kombu sea vegetables.
**Wt/Vol., Packaging, Price:** 225 gm (7.9 oz).
**How Stored:** Refrigerated.
**Nutrition:** Per 100 gm.: Calories 124, protein 15 gm, carbohydrates 6 gm, fat 1 gm.
**New Product–Documentation:** Leviton. 1982. In a Small Bright Building. Talk with and letter from Wayne Fatt. 1988. Sept. 28-29. The business was started in 1980 in a small building in Sooke, a community on the outskirts of Victoria. It has since relocated twice. In May 1988 Wayne Fatt purchased the company from Wayne Jolley, and in July 1988 moved from 2625 Otter Point Rd., R.R. 2, Sooke, BC, V0S 1N0 to a much larger facility at 4247 Dieppe, in Victoria. The company name is unchanged. They now make Wheatlets (seitan, formerly called Vegetarian Wheat Cutlets, launched in Sept. 1987), available in garlic, ginger, or plain flavors.

Label for Wheat Cutlets sent by Wayne Fatt. 1988. Sept. 6 by 4 inches. Self adhesive. Dark brown and white on orange-yellow. The product is now named "Grainwave Vegetarian Wheat Cutlets," made by Grainwave, Sooke, B.C. V0S 1N0.

1774. *Restaurants and Institutions.*1987. 1987 growth chains: The Tofutti Shop. Oct. 14. p. 52.
• ***Summary:*** The Tofutti Shop franchise projects sales of $2.5 million in 1987 with 4 units in operation by year end. The company-owned unit is located in New York City. The single existing franchise unit is in Teaneck, New Jersey. Annual sales per unit are $500,000 to $750,000. Checks average $2.75. The fee is $25,000 with 5% royalties. The

company spends 5% of sales on advertising. Franchise deals for Germany, Canada, and several Scandinavian countries are pending. The Soviet Union is showing interest in a Tofutti Shop. Address: Des Plaines, Illinois.

1775. Dagnoli, Judann. 1987. Tofutti spreads reach into Canada, Australia. Finland is next target. *Advertising Age.* Oct. 19.
• ***Summary:*** According to Steven Kass, chief financial officer, Zabbar Pty Ltd. is the Tofutti distributor in Australia, and Aur-Mark Holdings is the master developer and distributor in Canada. Canada has high per capita consumption of ice cream. New products include Tofutti Frutti (frozen dessert on a stick), Better than Cheesecake (cheeseless cheesecake), and Egg Watchers. They are trying to expand into areas besides dessert. The northeast is Tofutti's strongest market both because of its high per capita consumption of ice cream and its high percentage of Jewish population who keep kosher. In the U.S. Ketchum/Hicks & Greist, New York, handles Tofutti Brands' estimated $3 million ad budget. Kass said that drop in 1986 sales was due mainly to increasing competition in the crowded frozen novelty category. Address: Chicago, Illinois.

1776. Schecter, Andy. 1987. Early history of Northern Soy (Interview). *SoyaScan Notes.* Oct. 26. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The Zen Center kitchen at Rochester, New York used to import tofu from Toronto [in Ontario, Canada]. Then in about 1975 Jay Thompson, who worked in the kitchen, saw an article by William Shurtleff in *Mother Earth News* offering a free chapter from a book in progress describing how to make tofu. When the chapter arrived, the kitchen crew started making tofu in the Zen Center kitchen. The tofu makers were Jay Thompson, Martha (last name unknown), Greg Weaver, Greg Mello, and Andy Schecter. They would make about 20 pounds of tofu once or twice a week.

After 3-4 months they moved the operation in the basement of the Zen Center, where it was more efficient. Again they made about 20 pounds of tofu a batch, at least once a week and during sesshins [sic] as often as 2-3 times a week. All of the tofu was consumed within Zen Center. None was sold commercially.

Then in late 1976 Greg Mello and Greg Weaver started talking about starting a commercial business independent of Zen Center and outside of it. They took their tofu to Oriental food stores and the owners showed interest. So they bought a large stainless steel cooking pot and other utensils. But in late 1976 there were some arguments, so Greg Weaver suggested that Greg Mello do it alone. So they parted.

At that point Andy Schecter was planning on leaving the Zen Center staff. He got together with Greg Mello and they found a 900 square foot space at 277 North Goodman Street in Rochester. In January 1977 they established the company called The Tofu Shop and began construction of the plant. They bought an oil-fired boiler, built a platform for the cooking pot, built presses, curding barrels, etc. In May 1977 production began. Their first product was tofu, followed shortly by a generic (unbranded, unlabeled) soymilk in plain and carob-honey flavors, put up in quart canning jars.

In late 1977 Greg Mello decided to leave. So in January 1978 Andy brought in Greg Weaver. In mid-1978 Mello and Schecter realized that tofu sales were slow since most people did not know what it was or what to do with it. So they decided to open a soy deli to introduce prepared tofu dishes to the public. Weaver took charge of the deli, which opened in November 1978 under the name "The Tofu Shop" at 686 Monroe Ave. The startup costs were about $20,000. Since the manufacturing branch of the partnership was now without a name, they decided to call it Northern Soy. And since Schecter felt that he would need more managerial help in running Northern Soy, he brought a third partner, Norman Holland, in around November 1978.

The three partners all owning two businesses didn't get along very well, so they decided to separate the two businesses. Weaver would own the deli as an independent business, while Schecter and Holland would own Northern Soy. Since the name The Tofu Shop legally belonged to Northern Soy, Weaver was asked to find another name. After briefly trying "The Tofu Gardens," he settled on "The Lotus Cafe." This deli, the fifth soy deli to open in America, was a pioneer in developing delicious tofu and tempeh recipes and marketing them in an attractive way. Featured in a cover story in the first issue of Soycraft (later Soyfoods) magazine (summer 1979), it offered both sit-down (20 seats) and take-out service, featuring hot vegetarian lunches and dinners. By 1982 it was the largest soy deli in America in terms of average weekly sales ($4,800) and maximum weekly sales ($6,500). Names of 30 of its most popular tofu and tempeh recipes are given in the books *Tofu & Soymilk Production* (1979) and *Report on Soyfoods Delis, Cafes & Restaurants,* both by Shurtleff and Aoyagi.

Tempeh production was started [in about Nov. 1977] by Earl Lepper in his home. Then at some point in 1979 or 1980 he moved the operation into a corner of The Tofu Shop. Eventually he decided to sell his tiny business to The Tofu Shop so he could move to California.

The Lotus Cafe closed in August of 1984 or 1985, in debt and after Weaver's unsuccessful attempt to sell it. Weaver went to work for a computer literacy firm. All 3 are still bachelors. Address: 30 Somerton St., Rochester, New York.

1777. *Farm & Country (Toronto, ONT, Canada).*1987. Asians buying plenty: Soy. Oct. 27.

• ***Summary:*** Ontario has captured 66% of Singapore's 41,000-tonne market (soybean). Yet out of Japan's 500,000-tonne annual imports for tofu manufacture, Ontario supplies less than 3,000 tonnes. Canada applies more rigorous grade standards than the U.S., but Canada needs better beans, not just better grading. Buyers believe that American beans are higher in protein. Address: Ontario, Canada.

1778. Bradner, Norman. 1987. Soybeans for the food market. *Seed World (Des Plaines, Illinois).* Oct. p. 44.
• ***Summary:*** Thailand imports nearly 100,000 tonnes/year of soybeans for food use. Japan imports 65,000 to 70,000 tonnes of small beans to make natto. Natto beans can be less than 5 mm in diameter and have a yellow cotyledon and hilum. For tofu, soymilk and miso, importers want high protein, low oil, maximum water soluble proteins, low phytate, high 11S protein fraction, large seed size and high sugar content. But a variety judged good one year can be deemed unsuitable the next. Environmental conditions during seed development play a significant role in determining the final chemical composition. Address: Pulse Breeder, King Agro, Inc., Chatham, Ontario, Canada.

1779. **Product Name:** Tofu.
**Manufacturer's Name:** MGM Brands.
**Manufacturer's Address:** 59 Howden Rd, Unit H., Scarborough, ONT, M1R 3C7, Canada. Phone: 416-752-6600.
**Date of Introduction:** 1987. October.
**New Product–Documentation:** Talk with company. 1988. March 2.

1780. Ontario Ministry of Agriculture and Food. 1987. Soybean buyers mission from Japan, Hong Kong, Malaysia, Singapore, October 10-20, 1987. Toronto, Ontario, Canada: Ontario Ministry of Agriculture and Food. 23 p. 30 cm. Saddle stitched. [Eng]
• ***Summary:*** Contents: Mission members (with a photo of each). Itinerary. Japanese market for edible soybeans. General uses of edible soybeans in Hong Kong, Malaysia and Singapore. List of major importers in Asia (by country). Ontario soybean suppliers. Role of the Ontario Soya-Bean Growers Marketing Board (Chatham, Ontario).

This conference, which took place in Toronto, Chatham, and Harrow, Ontario, Canada, was sponsored by OMAF in Toronto. On the mission were 6 buyers from Japan (Takeya Miso Co., Asahi Industries [tofu maker], Takano Foods Co. [natto maker], Dah Cong Hong, Wako Shokuryo Co., and Gomei Shoji Co. [the last 3 is each an importer and wholesaler]), 2 from Hong Kong (Amoy Industries Ltd., and Chung Hing Co.), 3 from Malaysia (Sin Yong Huat Enterprises Sdn. Ltd, Yeo Hiap Seng (Malaysia) Ltd., and Chop Lee Kit Heng), and 2 buyers from Singapore (Eng Huat (S) Ltd. and Chop Hin Leong). Mike Hojo of OMAF/Tokyo was the mission leader.

The Japanese soybean market is about 5 million tons a year. Of this: Oil crushing 4,036,000 tons. Food 849,000 tons (17% of total), and feed (not crushed) 70,000 tons. From 1982 to 1986 domestic Japanese soybean production has decreased from 168,000 tons to 147,000 tons, while imports have increased from 4,344,000 tons to 4,857,000 tons. Demand for food soybeans has increased from 803,000 tons to 849,000 tons. Tofu, miso, and natto account for more than 94% of the total utilization of edible soybeans, roughly as follows: Tofu 500,000 tons, miso 200,000 tons, natto 100,000 tons.

In 1986 some 89.9% of Japan's soybean imports came from the USA, followed by China (6.7%), and Brazil (2.65%). That year the least expensive soybeans came from Brazil (US$219.86/ton), followed by USA ($221.36), China ($236.06), and Canada ($277.50). Note that Canadian soybeans are 25.3% more expensive than those from the USA. Chinese and Canadian soybeans are most widely used to make foods. Large Chinese soybeans are used to make tofu, medium sized for miso, and small for natto. Of the soybeans imported from the USA, 80-85% are imported from oil crushing because of their high oil content. The remaining 10-15%, or approximately 700,000 tons are food soybeans from Iowa, Ohio, or Michigan. Called "IOM" soybeans, they are used mainly to make tofu. Brazilian soybeans have a high oil content and are used for oil crushing only. The ocean freight cost for a 20-foot container shipped to Tokyo is as follows: USA west coast $1,000. Toronto, Canada $1,800. USA East Coast $2,000. Brazil $2,100. Argentina $2,500. But a large percentage of regular soybeans are loaded directly into ships, and travel at lower freight rates. Exports of food soybeans from Canada to Japan rose from 10,000 tons in 1979 to 26,000 tons in 1986, while those from China rose from 267,000 tons in 1979 to 323,000 tons in 1986.

Very detailed preferred characteristics are given for soybeans to make miso (6 characteristics), natto (5), and tofu (5). Canadian soybeans are recognized as superior to Chinese and American soybeans for food use. This is one reason they command a relatively higher price.

Hong Kong imports 28,100 tons/year of soybeans, and 63% of these come from Canada, followed by China (35%), and the USA (1.8%). Malaysia and Singapore import 124,800 tons/year, and 53% of these come from the USA, followed by Canada (31.7%), and China (8.2%). Most of the food soybeans in Malaysia and Singapore are used to make soymilk and tofu.

Soymilk: Vitasoy dominates the market in Hong Kong, whereas in Malaysia and Singapore the leading manufacturers are Yeo Hiap Seng, Cold Storage, Lam Soon, and Nestle. Soymilk consumption is increasing in these 3 countries, and in neighboring countries. Soymilk makers

believe there are four requirements for their products' success: It must taste good, must be priced competitively with soft drinks, must be perceived as a health food, and must be marketed properly.

Bean curd sheets and sticks [yuba] are very common snacks and dishes in Hong Kong, Malaysia, and Singapore. Manufacturers consider only Chinese and Canadian soybeans for these products. Canadian soybeans produce whiter soymilk and this whiter yuba. However the larger size of Chinese soybeans results in a larger yield. Manufacturers normally blend 60% of Canadian soybeans with 40% of Chinese soybeans to obtain a higher output of whiter sheets.

Major Japanese soybean importers include: Da Chong Hong (Japan) Ltd., Gomei Shoji Co. Ltd., C. Itoh & Co. Ltd., Mitsubishi Corp., Kanematsu-Gosho Ltd., Nichimen Corp., Marubeni Corp., Mitsui & Co. Ltd., Nissho Iwai Corp., Okura & Co. Ltd., Toyo Menka Kaisha Ltd., Wako Shokuryo Co. Ltd. Address: Ontario, Canada.

1781. *Plenty Canada News (Lanark, Ontario, Canada).*1987. Plenty Canada's soy project in St. Lucia. Fall. p. 6.
• ***Summary:*** A man named Christopher of Canaries in St. Lucia was given several weeks of informal training is soy processing and marketing at the Plenty Canada Soy Centre there by Maya Shearer. He has now started a small retail outlet for soyfoods in Canaries. Address: R.R. 3, Lanark, ONT, K0G 1K0, Canada.

1782. **Product Name:** Tempeh Sticks (Deep-fried without Batter).
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. October.
**Ingredients:** Fresh tempeh, chicken soup cubes, white flour.
**Wt/Vol., Packaging, Price:** Each stick is 6 inches long and retails for Rs. 1/-.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre. For details see Chocolate Milk (Aug. 1987).

1783. *SoyaScan Notes.*1987. New Trend: Europe's hottest new soyfood product, smoked tofu, is almost unknown in America (Overview). Oct. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Recent European visitors and letters to the Soyfoods Center have praised the new varieties of smoked tofu made by many European tofu companies. They are surprised that this product is not better known in America. The earliest known commercial smoked tofu was produced in France in 1911 by Chinese soyfoods pioneer Li Yu-ying. In 1974 Komatsugawa Tofu in Japan made a smoked tofu inside a deep-fried tofu pouch, sold in oil in a sardine can. The earliest known smoked tofu in the Western world was introduced in June 1984 by L'Herberie in Montreal, Quebec, Canada. All of the recent European brands have been introduced since 1986. They are made in England (Caldron Foods, Regular Tofu Co., Full of Beans Soyfoods), Germany (Soyastern, Morgenland Pflanzenkost, Christian Nagel Tofumanufaktur), Netherlands (Manna Natuurvoeding, Heuschen-Schrouff B.V.).

1784. Zee, J.A.; Bourgeois, M.; Boudreau, A.; Breton, R.; Jones, J.D. 1987. Utilisation de la féverole dans la fabrication du tofu [Utilization of fava beans (broad beans) in the manufacture of tofu]. *Canadian Institute of Food Science and Technology Journal* 20(4):260-66. Oct. [28 ref. Fre; eng]
• ***Summary:*** Describes the optimal process, chemical composition, nutritive value, texture, and organoleptic properties of this product usually made from soybeans. Faba bean tofu was darker in color (beige), less firm, and slightly more bitter in taste than soybean tofu. Optimum yields of tofu from fava beans (also called "broad beans," *Vicia faba)* was 66.8% by weight and 44.8% of the protein, obtained with a bean:water ratio of 1:10. Increasing the amount of coagulant decreased the protein yield. GDL (glucono delta-lactone) gave the tofu a very pale color, but the protein yield was less than with other coagulant salts. Address: Dep. of Nutrition Humaine et de Consommation, Centre de Recherche en Nutrition, Université Laval, Quebec, QUE, G1K 7P4 Canada.

1785. Dickrell, Jim. 1987. To the year 2000: Soybeans face bleak export prospects. *Farmer (St. Paul, Minnesota).* Nov. 7. p. 12-13.
• ***Summary:*** It is not likely the jubilation of American soybean farmers from the early 1970s will return any time soon. U.S. soybean exports reached their peak of 25 million tonnes in 1981, and now stand at about 18 million tonnes. The main reason for the drop in buying by the 12 EEC countries during the 1980s has been the doubling of sunflower and rapeseed production. EEC soybean production, primarily in Italy, has also tripled in the past 2 years. The EEC has encouraged domestic oil crop production by paying lucrative subsidies to European oil crushers. They, in turn, have been able to offer growers high crop prices, about $15/bu for soybeans in Italy.

Japan has decreased its imports of soybeans, replacing them by Canadian canola (rapeseeds), which are less expensive, in part because they grow in Western Canada. Rapeseed oil is now the cheapest oil in world markets. Argentinian soybean yields now average 34.6 bu/acre

versus 31.7 in the USA. Eight years ago the U.S. had 65% of the world soybean market; now it has 49% Eastern European countries prefer buying soybeans from South Americans, mainly for political reasons. Address: Minnesota.

1786. Armstrong, Julian. 1987. Tofu or not tofu: It's hot then cold. *Gazette (The) (Montreal, QUE, Canada).* Nov. 11. p. E-3.
• ***Summary:*** A lavish and colorful buffet featuring tofu was served at the 19-hotel Canada Pacific chain. "Montreal tofu guru and cookbook author Yvon Tremblay and the Chateau Champlain's executive chef, Alain Monod, had produced a delicious variety of cold hors d'oeuvres, hot main courses, and cooling desserts..." The best dish was a curry (see recipe).

1787. Cloud, Jon. 1987. Breeding soybeans for food uses in Canada, the Organic Crop Improvement Association, new developments with okara, and Soy City Foods (Interview). Conducted by William Shurtleff of Soyfoods Center, Nov. 15. 2 p. transcript.
• ***Summary:*** Jon Cloud has done much work on breeding soybeans for food uses, especially for tofu. He started the Organic Crop Improvement Assoc. (OCIA) in Canada. It is now in 6 countries and 22 states in the USA. OFPANA has not progressed. He is doing exciting new work with soy mash overseas, with Griffith Labs. Soy City Foods is a corporation that is worker owned. Address: Soy City Foods, Toronto, ONT, Canada.

1788. Freedman, Alix M.; Waldholz, Michael. 1987. A different oil war breaks out, and now the fat is in the fire. Malaysia's palm-oil forces take on U.S. soybeaners; at issue: Health & money. *Wall Street Journal, European Edition.* Nov. 18. p. 1, 10.
• ***Summary:*** A cutting, comical review of the battles to date. All tropical fats account for only 5% of the $2,000 million cooking oil market; soy oil has 80%. The Malaysians, however, worry that the soybeaners' war of words will spill over U.S. borders and hurt their sales elsewhere in the world, where their major markets lie. American soybean farmers should be more worried about Canadian rapeseed oil, which has only 7% saturated fat. This is a trade issue which has been carried into the science and health arena. Malaysians and Filipinos raise the risk of Communist insurgency. Address: Heerlen, Netherlands.

1789. Johnson, Fred. 1987. Aseptic potentials: A number of products aseptically packaged in other countries could offer sound Canadian opportunities. *Food in Canada* 46(10):24-25. Nov.
• ***Summary:*** Morinaga Nutritional Foods Inc. of Los Angeles, California, reports skyrocketing sales of its tofu products in Tetra Brik cartons. From October 1984 to September 1985 it sold 1.9 million packages. From October 1985 to September 1986, sales almost tripled. Aseptic packaging of soups, sauces, puddings, vegetable oils and dressings, soybean milk, and tofu is detailed. Address: Toronto.

1790. LaBell, Fran. 1987. Canola/LEAR oil–low in saturated fat. *Food Processing (Chicago)* 48(12):73-74, 76, 78. Nov.
• ***Summary:*** Canola (rapeseed) oil contains less saturated fat than any other popular vegetable oil–only 6%, versus safflower oil 9%, sunflower oil 11%, corn oil 13%, olive oil 14%, soy oil 15%, peanut oil 18%, cottonseed oil 27%, lard 41%, palm oil 51%, beef tallow 52%, butterfat 66%, and coconut oil 92% (Agricultural Handbook No. 8-4, 1979). LEAR means low erucic acid rapeseed oil. It has excellent stability.

Less than 20 years ago, there was no canola oil used in the Canadian food supply. Now, 59% of the vegetable oil consumed in Canada is canola oil. The FDA added low erucic acid rapeseed oil (LEAR oil) to the GRAS list in January 1985. Approval of amended FDA labelling regulations is currently being sought so that the oil can be commonly and legally termed canola oil in the U.S., as it already is in Canada. "Attempts to use it in food were hindered by its high erucic acid and high glucinolate contents. Thanks to a plant breeding program, utilizing genetic engineering, Canadian scientists have reduced the erucic acid content from 26% or more to less than 1% in an oilseed. Canola oil has a low level of saturated fatty acids and excellent stability." The fry-life is considered exhausted when the fat has a consistent 1-inch foam. Address: Eastern editor.

1791. *Plenty Canada News (Lanark, Ontario, Canada).*1987. Report from Guatemala. Fall. p. 6.
• ***Summary:*** The Guatemala Integrated Rural Development programme was initiated in 1976 and withdrawn in 1980 due to violence in the region. It was reactivated in the 1985 fiscal year. Soy processing activities continue to gain in popularity, as shown by the large turnout for the demonstrations, the number of requests received for training by different agencies and the visits made by both government and non-government agencies to the Soy Centre in Solola. A three-day course on soyfood processing given by the local Plenty Soy Technician to five Alianza promoters, was in turn given by those five promoters to over 900 people during the next two months.

The Soy Centre serves as a model to demonstrate the economic viability of soy processing and to encourage private entrepreneurs to start income-generating activities in their own communities. A number of new foods have been developed locally as a result of Plenty's programme,

combining soy with traditional foods. Atole, a drink made with soy and cornflour, a sweetener, cinnamon and water, is one example. The combination of training and the loan by Plenty Canada of a basic soy kit (which becomes his own property after 3 years use), has motivated Christopher [of Canaries in St. Lucia] to start a small retail sales outlet for soy products in Canaries. This outlet has been in operation for several months and is doing quite well. Address: R.R. 3, Lanark, ONT, Canada KOG 1KO. Phone: 613-278-2416.

1792. **Product Name:** Tofreezi (New Name for Frozen Buddha Soy Ice Cream) [Mocha Royalle, Berry Banana, Amaretto, Pineapple Coconut, Chocolate Mint, or Maple Walnut].
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada.
**Date of Introduction:** 1987. November.
**How Stored:** Frozen.
**New Product–Documentation:** Talk with Michael Weiner. 1987. Dec. 16. Sunrise bought this line of soy ice creams in November 1987 from Ray Lipovsky of Metta Tofu Products Ltd. on Denman Island. Ray is now consulting for Sunrise.

1793. Tremblay, Yvon; Milon, Richard. 1987. Pioneering tofu in Quebec (Interview). Conducted by William Shurtleff of Soyfoods Center, Dec. 11. 3 p. transcript.
• ***Summary:*** Tremblay, who became a vegetarian in 1974, first learned of tofu in 1975, when a macrobiotic man from Boston taught him how to make it in Quebec. He soon began to make tofu at home in Quebec 2-3 times a week, and served it to large groups for whom he was cooking. In July 1977 he opened his first restaurant, L'Envolee, a natural food and vegetarian restaurant in Quebec City. He made tofu by hand in the restaurant and used it in a number of recipes. In 1981 he was accepted into the prestigious Society of Chefs and Pastry Chefs of Quebec. That November he and Richard Milon started a company named Les Aliments Soyabec, Inc. making tofu and baked tofu, from tofu imported from Swan Gardens in Miami, Florida. To promote these products, Tremblay wrote a recipe book in French titled *The Magic of Tofu.* In 1986 his second book on tofu, titled *Tofu,* was published. By now his first book had sold 35,000 copies. Address: 1. 5387, Fabre St., Montreal, QUE, H2J 3W6 Canada; 2. Cuisine Naturelle Johnathan, 12080 Pasteur, Montreal, H3M 2P9, Canada.

1794. Boughton, Noelle. 1987. Tai Foods tries for tofu converts. *Small Business (Canada).* Dec. p. 12, 14.
• ***Summary:*** Nancy Tai, Taiwanese by birth, started making tofu in her own kitchen in 1982 for her husband who was allergic to dairy products. In 1985 the Tais moved to Winnipeg and in June 1985 incorporated Tai Foods Inc. Her startup costs were $200,000. In April 1986 she began production of tofu and Tofu Treat (a non-dairy frozen dessert) in 3 flavors. She uses 1,250 kg of soybeans a month. In 1986 Tai Foods had gross sales of $100,000 with 4 employees. This is expected to rise to $150,000 in 1987. Address: Winnipeg, MAN.

1795. deMan, L.; deMan, J.M.; Buzzell, R.I. 1987. Composition and properties of soymilk and tofu made from Ontario light hilum soybeans. *Canadian Institute of Food Science and Technology Journal* 20(5):363-67. Dec. [16 ref. Eng; fre]
Address: 1. DeMan Food Technology Services Inc., Guelph, ONT, N1H 6B5, Canada; 2. Dep. of Food Science, Univ. of Guelph, Guelph, ONT, N1G 2W1; 3. Agriculture Canada, Research Station, Harrow, ONT, N0R 1G0, Canada.

1796. **Product Name:** Chinese Tempeh Rolls.
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. December.
**Ingredients:** Fresh or dried tempeh, chilies, onions, spices, salt, white wheat flour, soya flour, biscuit powder, pepper.
**Wt/Vol., Packaging, Price:** Each roll, 3.5 inches long and 1 inch diameter, retails for Rs. 3/-.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre. For details see Chocolate Milk (Aug. 1987). The product is adapted from a local recipe for a deep-fried food.

1797. **Product Name:** Pancake (Rolled with Filling).
**Manufacturer's Name:** Plenty Canada Soya Utilization Project.
**Manufacturer's Address:** 88A Kotugodella Vidiya (Postal Box 95), Kandy, Sri Lanka.
**Date of Introduction:** 1987. December.
**Ingredients:** Pancake: White wheat flour (3/4), soya flour (1/4), turmeric, salt. Filling: Coconut, sugar, vanilla, salt.
**Wt/Vol., Packaging, Price:** Each roll, 6 inches long, retails for Rs. 2/-.
**New Product–Documentation:** Form filled out by Jane Gleason. On 23 March 1988 she visited the Plenty Canada Soya Food Centre. For details see Chocolate Milk (Aug. 1987). Adapted from a local recipe.

1798. **Product Name:** Splits (Split Soybeans).
**Manufacturer's Name:** Plenty Canada.
**Manufacturer's Address:** Soya Food Centre, 88A Kotugodella Vidiya, Kandy, Sri Lanka.
**Date of Introduction:** 1987. December.
**Ingredients:** Soybeans.

**Wt/Vol., Packaging, Price:** 500 gm bag with label retails for Rs. 8.
**How Stored:** Shelf stable.
**New Product–Documentation:** Label. 1988. 6 by 2 inches. Purple on white paper. Form filled out by Jane Gleason. On 23 March 1988 she met with Miss Geethanjal Jayasena, Soya Technician, Plenty Canada. These dry split soya beans are sold for home use or to small scale soyfood producers.

1799. **Product Name:** Country Nuggets (Soynuts) [Chocolate, Carob, Yogurt, Butter-Toffee, Onion-Garlic, Salted, or Natural].
**Manufacturer's Name:** Ridgetown Country Harvest.
**Manufacturer's Address:** Box 908, Ridgetown, ONT, N0P 2C0, Canada. Phone: 519-674-0620 or 0631. In Toronto: 416-778-0007.
**Date of Introduction:** 1987. December.
**New Product–Documentation:** Talk with Jim Boak of RCH. 1988. Sept. 1. His line of soynuts was launched just before Christmas 1987. The soynuts are roasted by INARI in Michigan, then coated and boxed in Canada. Soon to be launched are Honey-Garlic, and Barbecue flavors. The Chocolate and Honey-Garlic flavors are new, not sold by INARI. He is also working with Growth Country Foods of Columbus Grove, Ohio.

1800. Shurtleff, William. 1987. Breeding and marketing soybeans for food uses: The basic approach. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 4 p. April. Unpublished manuscript. [1 ref]
• ***Summary:*** There are four key components in developing a program to become a leading supplier of soybeans to the soyfoods industry: Information, specifications, research & development, and education. Details of a computer data entry screen and suggestions for four computer-generated graphs are given. Includes notes on a talk with Jon Cloud of Soy City Foods in Toronto concerning his long-term work in developing soybean varieties for food uses, and with the Organic Crop Improvement Association. Address: Soyfoods Center, Lafayette, California.

1801. *Soyanews (Sri Lanka).*1987. Plenty Soya centre opens in Kandy. 9(2):1-2. Dec.
• ***Summary:*** "One of the main objectives of the project is to have the Soya Centre act as a central point from which all of the soya products available in Sri Lanka can be obtained at a reasonable cost and in consistent supply. Another major objective is to assist community groups and small businessmen to set up their own small scale soya processing operations." The opening took place on 28 September 1987. Mr. Ian Taylor of Plenty Canada is the director.

"This is the first stage of a five year soya promotion project funded by the Canadian International Development Agency (CIDA) and implemented by Plenty Canada in collaboration with the Soybean Food Research Centre (SFRC) at Gannoruwa and various local non-governmental agencies." The Soya Food Centre is equipped to manufacture a wide range of soya based products including ice cream, stuffed rotis, soya watalappam, fresh as well as dried tempeh and cutlets. One of the main objectives of the project is to have the Soya Centre act as a central point from which all of the soya products available in Sri Lanka can be obtained at a reasonable cost and consistent supply.

The Plenty Soya Food Centre is open from Monday to Saturday and is located on the main floor of the Y.M.C.A. at No. 88A, Kotagodella Vidiya, Kandy. The project is a result of a collaboration with Plenty's Field Director, Mr. Ian Taylor in November, 1986.

1802. *Soybean Digest.*1987. More oilseeds? Dec. p. 51.
• ***Summary:*** USDA estimates for 1987: Italy's soybean production will reach a record 1.3 million tons. Canada's rapeseed crop will grow to 3.7 million tons. And French sunflower production will hit a new record 2.5 million tons.

1803. Tofutti Brands Inc. 1987. Tofutti. Annual report. Rahway, New Jersey. 14 p. Dec.
• ***Summary:*** The fiscal year ended January 2, 1988. Net sales for the 53 week period were $7,705518 versus $11,602,910 for the 52 week period ending August 2, 1986. The Company's operating loss was $2,560,645 as compared to an operating loss of $1,384,156 for the fiscal year ended August 2, 1986. The most important problem faced by Tofutti Brands last year was the rebuilding of its national distribution. The Company's first international license agreement was signed in June 1987 with Aur-Mark Holdings Co. Ltd. of Toronto, Canada, for the manufacture and sale of Tofutti Brand nondairy frozen desserts in Canada. The Company also signed an agreement in September 1987 with Zabbar Pty. Ltd., an Australian company, for the manufacture and sale of Tofutti Brand nondairy frozen desserts in Australia. The Company's first franchise shop in Teaneck, New Jersey was opened for business on March 3, 1987. The Company acquired the Tofutti Franchise Shop in Teaneck during October 1987. The Company-owned shop in Carteret, New Jersey was closed in January 1987.

David Mintz owns 50.8% of the Common Stock while Francis I. Mullin, III (President and Chief Operating Officer since August 1986) owns 2.2%. They are the biggest stockholders in the company. Mullin received $221,173 in cash compensation, while Mintz received $102,923. The Company entered into a 3-year employment agreement with Mr. Mullin commencing on August 18, 1986, in which he will receive an annual base salary of not less than $217,000. Mullin will also receive an annual bonus equal to a percentage of the increase, if any, in net sales and net

income of the Company. Address: 1098 Randolph Ave., Rahway, New Jersey 07065.

1804. **Product Name:** Quinoa Tempeh.
**Manufacturer's Name:** Noble Bean.
**Manufacturer's Address:** R.R. 1, McDonalds Corners (near Elphin), Ontario K0G 1M0, Canada. Phone: 613-278-2305.
**Date of Introduction:** 1987.
**How Stored:** Frozen.
**New Product–Documentation:** Letter (fax) from Allan Brown. 1998. Jan. 21. This tempeh was first sold in 1987.

1805. **Product Name:** Soysage.
**Manufacturer's Name:** Plenty Canada Soya Shop. Renamed Soy Development Center by 1987.
**Manufacturer's Address:** Roseau, Dominica.
**Date of Introduction:** 1987.
**New Product–Documentation:** Plenty Bulletin. 1987. Fall. p. 4.

1806. **Product Name:** Soya Nova Okara Spread (sold in bulk).
**Manufacturer's Name:** Soya Nova Tofu Shop.
**Manufacturer's Address:** R.R. #2 Rourke Road, C-28, Ganges, Saltspring Island, BC, V0S 1E0, Canada. Phone: 604-537-9651.
**Date of Introduction:** 1987.
**Ingredients:** Organically grown soybeans, brown rice, tamari, unrefined oils, fresh onions, garlic, carrots, herbs, spices.
**How Stored:** Refrigerated.
**New Product–Documentation:** Letter from Greg Lundh of Silverking Soya Foods in Nelson, BC, Canada. 1990. Dec. 14. Soya Nova Tofu Shop introduced Okara Spread in 1987.

Leaflet sent by Deborah Lauzon. 1991. Feb. 6. "Soya Nova Tofu Shop." Describes the product.

1807. **Product Name:** Yves Tofu Chili Dogs (Meatless Hot Dogs Made with Tofu).
**Manufacturer's Name:** Yves Natural Foods.
**Manufacturer's Address:** 1138 East Georgia St., Vancouver, BC, V6A 2A8, Canada. Phone: 604-251-1345.
**Date of Introduction:** 1987.
**Wt/Vol., Packaging, Price:** 12 oz per package of 9. Vacuum packed.
**How Stored:** Refrigerated, 38 day shelf life.
**New Product–Documentation:** Talk with Michael Weiner. 1987. Dec. 16. "Made from a special blend of authentic Mexican Style spices and seasonings," they come 8 to a pack and can be refrigerated for up to 35 days. Leaflet. 1988. April. "Introducing Yves Tofu Chili Dogs."

Spot in SoyaFoods. 1990. Dec. Yves' tofu delicatessen line is now available in the UK. The meatless products include tofu wieners, Mexican style tofu chili dogs, and tofu deli slices.

1808. Central Soya Co. 1987. Central Soya. 1987 employee annual report. Ft. Wayne, Indiana. 23 p. 28 cm.
• ***Summary:*** Globalization of Central Soya began in earnest in 1987, including the opening of a European sales office for Chemurgy. In that Division, textured concentrates have enjoyed an increase in demand, due primarily to greater usage in school lunch programs. However, despite successful projects to expand soy concentrate capacity at Remington, Indiana, and texturized capabilities at Gibson City, Illinois, demand continues to challenge the Division's ability to supply. Engineering and design of a new soy concentrate plant is well underway, with completion scheduled for 1989.

Income Statement ($ in millions unaudited):

Net Sales (Total): 1987 = $1,522.8; 1986 = $1,381.7

Earnings: Refined Soya Products: 1987 = $21.1; 1986 = $10.9

Net Income: 1987 = $8.7; 1986 = $1.8

Facilities include: Soybean Processing (Ohio: Bellevue, Delphos, Marion; Indiana: Decatur, Indianapolis; Chattanooga, Tennessee; Gibson City, Illinois; Toronto, Ontario, Canada; Utrecht, the Netherlands).

Soy Proteins and Lecithins (Ohio: Bellevue, Marion; Indiana: Decatur, Remington; Gibson City, Illinois).
Address: P.O. Box 1400, Fort Wayne, Indiana 46801-1400.

1809. Kimpinski, J.; Arsenault, W.J.; Macleod, J.A. 1987. Root-lesion nematodes in tobacco on Prince Edward Island. *Lighter* 57(3-4):31-33. [5 ref]*
Address: Agriculture Canada Research Station, Charlottetown, PEI, Canada.

1810. Leavenworth, Donald H. 1987. Soybeans in the '90s–World supply and demand. *ASTA (American Seed Trade Assoc.)* 16:1-13.
• ***Summary:*** Outlines eleven major changes that have taken place in the world soybean economy during the past six years, most of them negative for the U.S. soybean industry. 1. Drop in annual crushing capacity utilization from 80% to 70%. 2. Exports of oil and meal have declined. 3. Plants have been closed permanently. 4. Crushing volume peaked in 1979-80. 5. The U.S. share of the world market has declined though the total market is growing 5% a year. 6. Production of rapeseed and sunflower seed have increased rapidly in the EEC. 7. The strong dollar has encouraged developing countries to develop oilseed self sufficiency. 8. Malaysia and Indonesia have increased palm oil production. 9. Rapeseed varieties have been improved and Canola oil is now Canada's leading oil. 10. Crushing capacity in Brazil and Argentina have grown dramatically because of high taxes on soybean exports. 11. The 1981 farm bill gave U.S.

farmers a fixed loan rate averaging $5.02 leading to high U.S. soybean prices. Address: Cargill, Inc., Minneapolis, Minnesota.

1811. Ontario Soya-Bean Growers' Marketing Board. 1987. Soybeans: The original Canadian oilseed (Leaflet). Chatham, Ontario, Canada. 8 panels. Undated. 22 x 10 cm.
• ***Summary:*** Contents: Who we are. What we do: Research, market development, government relations, market information, advance payment program. Pricing. How soys are used (soybeans are crushed at plants in Toronto, Hamilton, and Windsor). Marketing channels.

"Established in 1949, the Ontario Soya-Bean Growers' Marketing Board is an elected group of farmers from across Ontario, that represents the specific interests of the province's soybean producers. The Board works with processors, grain elevators and the government to create a fair return to the grower for his soybean crop.

"The Board's office is located in Chatham, where it is surrounded by the five counties that produce 76% of Ontario's soybeans." A map shows the soybean growing regions in Ontario. Address: Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

1812. Shurtleff, William; Aoyagi, Akiko. 1987. Soymilk industry and market: Updates from 1984 to 1987. Lafayette, California: Soyfoods Center. 17 + 59 p. Index. 28 cm. [165 ref]
• ***Summary:*** This 1987 update to the Soyfood Center's two-volume 1984 *Soymilk Industry and Market* has two parts: (1) Year in Reviewing, describing key events and trends each year from 1984 to 1986. (2) A bibliography of soymilk from January 1987 to late 1987, based on records in the SoyaScan database; at the end is a 10-page index. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

1813. Williams, Robert C. 1987. Fordson, Farmall, and Poppin' Johnny: A history of the farm tractor and its impact on America. Urbana, Illinois: University of Illinois. ix + 232 p. Illust. Index. 24 cm.
• ***Summary:*** A superb, highly readable yet carefully researched and analyzed history of the tractor in America. "It is divided into two large sections. The first (chapters 1 through 6) trace the chronological development of the tractor. The second (chapters 7 through 9) describe some of the social and economic consequences of the tractor and examines its impact on the farm and the individual farmer.

"Of all the farm implements, the tractor has had the greatest impact on rural life." "In one generation between 1920 and 1950, most farms in the United States changed from dependence on draft animals to dependence on mechanical power." Clearly one of the most important machines developed in the twentieth century, the tractor played a pivotal role in the "great migration from the countryside to the cities that began in the 1920s and continued through the 1950s–a time when farm production increased despite a decrease in the supply of farm labor."

Wayne D. Rasmussen (1962) has argued that "there were two major revolutions in American Agriculture: one occurred when horses and mules replaced hand tools and human muscle, and a second one when engines replaced equine muscle."

The early tractors were powered by steam from an external fire source; thus they could be called "external combustion engines." Many were used primarily as a source of power or threshing grains. They were large and unwieldy, but by the early 1880s most were self-propelled. In about 1863, Henry Ford, at the age of 12 encountered such a steam traction engine on a road near Detroit. It changed his life–and the history of the tractor–for he was determined to improve on it.

In 1892 John Froelich built the first mechanically successful gasoline tractor; it powered a thresher and pulled the rig from the field.

Surprisingly it was World War I that sparked the rise of the farm tractor in America. The European War caused an enormous drain on America's supply of horses, mules, and farm labor. "Tractor promoters used the threat of shortages to full advantage. Beginning in May 1917, Raymond Olney, the editor of *Power Farming*, pleaded with farmers to use tractors to release men for the armed services and to provide the food the allies needed. Even non-farm journals sounded a similar plea. Tractors were good for the nation, and farmers who bought tractors helped win the war... By prodigious exertion, U.S. tractor makers rolled out 62,742 units in 1917. That same year, Henry Ford launched the Fordson tractor–the first tractor produced by automobile-style mass-production assembly line methods. He first committed to make tractors in Britain, yielding to intense diplomatic pressure from the British government which desperately needed tractors for the wartime food effort. The Fordson's price tag of $750 f.o.b. was far below that of the competition, and it sold well. In Jan. 1922 Ford slashed the price to an all-time low of $395. Ford's output of tractors was impressive. In March 1918, eighty units a day were rolling off the assembly line, with production expanding toward a goal of 300 units per day by December 1918. In 1920 Ford boasted that he had sold 100,000 tractors. That number represented almost twice the number of tractors in use when the Fordson was unveiled just 3 years earlier. During the 1920s Fordsons probably accounted for more than half the tractors built in America (p. 49).

Ford's big competitor was International Harvester (IH), whose main product was tractors. Cyrus H. McCormick, grandson of Cyrus Hall McCormick (who in 1831 invented the reaper) and later president of the family's IH empire, described the two warring companies as they went to battle:

"Ford was backed by the most popular commercial name of the time and by the uncounted millions earned for him by his epoch-making car; and he was trying to capture a business with which he had no previous contact. International had on its side many years of training gained from contact with farmers, less capital by far, and utter inexperience with defeat.

"The six-year fight will stand as an epic in industrial competition, but in 1927 International finally surpassed Ford in the number of tractors sold to farmers. By 1928, Ford Motor Company discontinued building the Fordson in North America, and virtually withdrew from the tractor industry. International Harvester and the implement industry won its desperate fight, but the victory came in the middle of a severe agricultural depression. It was, like most victories, the result of several strengths in the winner and several weaknesses in the loser.

"Ford's mechanical surrogate in the battle with International was the Fordson tractor. At the time of its introduction, the Fordson was a remarkable machine. Henry Ford's refusal to update his tractor–similar to his freezing of the designs of the Model T and Model A–should not be permitted to overshadow the real contribution of the automaker's little gray machine.

"In its brief lifetime, the Fordson accomplished some notable feats. It imposed its configuration upon so many tractors that the design came to be thought of as the conventional pattern for tractors. It introduced mass production into the industry for the first time, making tractors economically attractive to large numbers of farmers. And despite its ultimate failure, it accelerated the trend toward carefully designed 'automotive type' engineering. Each of these accomplishments merits explanation."

"The Fordson was the first mass-produced tractor, and all of its other attributes were really ancillaries to this fact. Mass production changed the tractor itself, it revolutionized the industry, and it made the tractor effectively available to the farmer for the first time. Even after the harrowing threat that the Fordson gave to his company, Cyrus H. McCormick still acknowledged the credit due to the Fordson. 'It is questionable,' he wrote, 'if the business of making tractors would have become a large scale industry had it not been for Ford...In 1918, the manufacturing methods employed by all tractor manufacturers were derived from implement and not automotive standards, and they were hardly up to date in terms of manufacturing progress.' The Fordson changed that.

"Mass production and the Ford-Harvester price war lowered the price of tractors to the point where a tractor cost 'less than the price of a good team of horses.'"

"Perhaps the kindest obituary for the Fordson was written long after the heat of rivalry had cooled. It was written by one who could pensively reflect upon a noble, fallen enemy. The Fordson, McCormick wrote, 'would operate successfully in so many conditions that huge numbers were sold; but it failed in so many places that ultimately farmers would have no more of it... The Fordson was a perfect theoretical answer to an imperfect practical problem.'

"By introducing mass production, the Fordson brought down the price of the tractor to the point that a much larger number of farmers could try using tractors. But it did not issue in a perfectly adapted or even a mechanically perfected machine. Rather, it increased the capital requirements and market potential of the industry to a point that such improvements were imperative. And it intensified competition to the point that further innovation was virtually inevitable."

The early tractors were designed mostly for pulling plows; they were not designed for row crops. Address: Clarendon, Texas.

1814. Wynne, Dave; Javaheri, Fereidoon. comp. and ed. 1987. Soyabean cooking in Zambia. Republic of Zambia, Dept. of Agriculture. 48 p. 22 cm. 1st ed. 1985.
• ***Summary:*** Contents: Acknowledgements. Foreword. Nutritional information. 1. Basic recipes. 2. General use. 3. Urban use. 4. Specialty recipes. Publication of this book was fully by the Lint Company of Zambia (LINTCO). The Mennonite Central Committee and ZAMARE gave support. Many recipes were developed by Mrs. Barbara Wynne, Mr. Lee Holland, or Miss Mabuya; most of the rest came from the *More-with-Less Cookbook,* by Doris Janzen Longacre, and Favorite Recipes by the American Women's Club in Lusaka. Surveys carried out by the National Food and Nutrition Commission (NFNC) and published in Dec. 1980 found a high incidence of malnutrition in Zambia, particularly in children aged 0-4 years. Soybeans can help greatly to alleviate this problem.

Talk with Hea-Ran Lee Ashraf. Dave Wynne was a Mennonite Missionary, and Fred Javaheri was also a missionary but working for the Zambian government. Fred, an Iranian with Canadian citizenship, has a deep, long-term dedication to soybeans with great energy, enthusiasm, and a sound knowledge of his resources. Hea-Ran believes that without these two men, the soybean program in Zambia would not exist today. Their group now also publishes a quarterly periodical titled *Soybean Newsletter.* Address: 2. Soyabean Coordinator, Mt. Makulu Central Research Station, Chilanga, Zambia.

1815. Quigley, Brian. 1988. Bremer Foods Corp. and soy yogurt in Quebec (Interview). *SoyaScan Notes.* Jan. 4. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Brian has done extensive research on a fermented soy yogurt by renting space at the St. Hyacinthe Food Research Center, which is owned by the federal government. He expects to launch a soy yogurt in Sept.

1988, and will also make tofu. He will start with whole soybeans (not isolates) and has purchased some equipment. His process is unique. He did not like Jofu, and he feels his product is vastly superior. It is 60% as acidic as typical dairy yogurt, is almost as white, and is sweetened with only honey rather than sugar. It is targeted at new yogurt eaters, those who dislike the high acidity of dairy yogurt. Tomsun is the only tofu in Quebec supermarkets. So he feels Tomsun will be his main competition in yogurt and tofu. He will be able to undersell Tomsun. Quebec has the highest per capita yogurt consumption of any province or state in North America; it has doubled in the past 6 years and is growing at 15-20% a year. Note that on 29 Oct. 1987 Martin DeLint of Montreal called to discuss this product. Address: Bremer Foods Corp., 3600 Casavant West, St. Hyacinthe, QUE, J2S 8E3, Canada. Phone: 514-773-1105.

1816. Muendel, H.-H. 1988. Soybeans: Current status and potential. *Agriculture Canada Research Station, Lethbridge, Weekly Letter* No. 2819. Feb. 24. 1 p.

• ***Summary:*** "Over the past decade a number of southern Alberta growers have tried growing small areas of soybean. Yields have been variable, depending on variety, time and depth of seeding, weed control, and harvesting equipment. In excess of 2 tonnes per hectare (30 bushels per acre) were achieved commercially. The major problem encountered was the lack of ready markets at sustained attractive prices.

"Several early maturing varieties suitable for production under irrigation in southern Alberta have been released in recent years: Maple Ridge and Maple Amber from the Agriculture Canada Research Station at Ottawa and KG20 by King Grain Limited.

"Research by Agriculture Canada at the Lethbridge Research Station and Vauxhall Substation and by Alberta Agriculture at Brooks and Bow Island has determined some of the agronomic requirements and characteristics of soybean.

"A number of commercial enterprises are now showing interest in Alberta-grown soybean. Recent developments of test processing and whole bean extrusion for animal feed are encouraging and other commercial processing interests as well as marketing into the tofu-tempeh human food markets are being explored. Whereas farmers in southern Alberta had no ready market for their soybeans in the past, this major obstacle to local production may soon cease to exist."

Note: As of April 1991, Dr. Hans-Henning Muendel was on official leave with an assignment to the organization of BARD project (Barani [Rainfed] Agricultural R&D) in Pakistan, administered by Agriculture Canada. He is at G.P.O. Box 1785, Islamabad, Pakistan. Address: Plant Breeder, Lethbridge, ALB, Canada. Phone: 403-327-4561.

1817. Acker, Duane. 1988. Aid, USAID, and U.S. agriculture. *International Agriculture Newsletter (Univ. of Illinois)* No. 117. p. 1-3. Feb.

• ***Summary:*** U.S. technical assistance projects did not cause the sharp drop in exports of U.S. commodities experienced since 1981. Factors that did contribute to the decline include: the prolonged high value of the dollar; reduced economic growth; the heavy debt load of low and middle income countries; an increase in agricultural production from 18 to 60% since 1975 in Argentina, Australia, Canada, China, and the European Economic Community (EEC); high farm subsidies in EEC countries; pricing U.S. grain above world levels; and import duties and other constraints.

There are five principles that apply to the development of Third World countries: (1) Poor people and poor countries do not buy much. (2) Strengthening and increasing the productivity of that part of the private sector that employs the most workers in a developing country will usually produce the most rapid economic growth. (3) improved nutrition improves productivity. (4) As income goes up diets diversify. With higher incomes, people want a better diet which is often reflected in the demand for meat. (5) As economics develop, countries increase both imports and exports. Exports are essential to help finance imports.

Developing countries that increased per capita food production the most rapidly also increased their imports of U.S. agricultural products most rapidly.

USAID, allied to the U.S. State Department, celebrated its 25th anniversary in 1986. Address: Director for Food and Agriculture, U.S. Agency for International Development (USAID).

1818. Aspinall, G.O. 1988. Chemistry of soybean carbohydrates. In: L. McCann, ed. 1988. Soybean Utilization Alternatives. St. Paul, MN: Univ. of Minnesota Center for Alternative Crops and Products. vi + 429 p. See p. 117-29. [32 ref]

• ***Summary:*** Discusses: Oligosaccharides. Polysaccharides: Structural analysis, extraction and fractionation, soybean starch, neutral polysaccharides associated with soybean pectin, soybean pectin, arabinoglucuronoxylan, xyloglucan, polysaccharides of soybean hulls. Address: Dep. of Chemistry, York Univ., North York, Toronto, Ontario M3J 1P3, Canada.

1819. Lovell, Richard T. 1988. Use of soybean products in diets for aquaculture species: Revised. In: L. McCann, ed. 1988. Soybean Utilization Alternatives. St. Paul, MN: Univ. of Minnesota Center for Alternative Crops and Products. vi + 429 p. See p. 235-65. [58 ref]

• ***Summary:*** Discusses: Nutritional requirements of aquaculture species: Protein and amino acids, energy, vitamins, minerals, essential fatty acids and sterols. Diet preparation. Nutritional value of soybean meal for fish:

Protein and amino acids, available energy, available minerals, essential fatty acids. Use of soybean meal in fish feeds: Replacement of fish meal, palatability, antinutritional factors in soybeans, full-fat roasted soybean meal, supplementing soybean meal with synthetic amino acids.

Fish farming, or aquaculture, has demonstrated extremely rapid growth during the last decade. Reasons for this are increasing demand for fish worldwide, especially in the more developed countries, diminishing supplies and increasing costs of sea-caught fish, more consistency in supply and quality of cultured fish, utilization of resources unsuitable for other types of food production, and attractive investment opportunities in aquaculture. Channel catfish farming in the U.S. has grown from almost obscurity in the late 1960's to an annual yield of approximately 300,000 tons in 1985. Farming of penaeid (marine) shrimp is presently the fastest growing aquaculture venture worldwide. World production was estimated at approximately 85,000 tons in 1984. Other cultured food fish of rapidly rising importance are coldwater salmon which are grown in net pens in the northern oceans, such as around Canada and Norway. The majority of salmon eaten in northern Europe comes from pens. Other commercial aquaculture species are eels, tilapia, carps, milkfish, sea bream, sea bass, yellowtail tuna, and more.

Intensive culture of fish for food is the fastest growing food production industry in the world. Fish feeds require large amounts of protein-rich ingredients. Fish meal has traditionally been the basis for most commercial fish feeds. It is highly nutritious for all commercial fish species, but it is also expensive. Address: Dep. of Fisheries and Allied Aquaculture, Auburn Univ., Alabama.

1820. McDaniel, M.R.; Chan, N. 1988. Masking of soy protein flavor by tomato sauce. *J. of Food Science* 53(1):93-96,101. Jan/Feb. [33 ref]
• ***Summary:*** Flavor interaction in a model system consisting of 5% (w/w) soy protein in a series of tomato sauces containing 55-100% commercial tomato paste was evaluated by six trained panelists. Individual odors and flavors of the soy protein became indistinguishable in soy/tomato mixtures. There was a substantial reduction in the overall soy odor, flavor, and aftertaste with the increase in tomato concentration. Address: 1. Dep. of Food Science & Technology, Oregon State Univ., Corvallis, OR 97331-6602; 2. graduate student, Dep. of Foods & Nutrition, Univ. of Manitoba, Winnipeg, Canada.

1821. Muendel, H.-H.; Schaalje, G.B. 1988. Use of near infrared reflectance spectroscopy to screen soybean lines for plant nitrogen. *Crop Science* 28(1):157-62. Jan/Feb. [20 ref]
• ***Summary:*** "The basic principles and procedures of near infrared reflectance spectroscopy (NIRS) use have been detailed by Rotolo (1979) and Shenk et al. (1981). Speed, ease of operation, and a reasonable degree of accuracy are attributes that have made NIRS attractive in numerous applications." The NIRS calibrations were on the average more highly predictable for predicting nitrogen content of soybeans than either one of two Kjeldahl determinations. Address: Agriculture Canada Research Station, Lethbridge, ALB, Canada T1J 4B1.

1822. *Soya Newsletter (Bar Harbor, Maine).*1988. New process and equipment for making non-beany soymilk unveiled. Cold-grind method suitable for small and large plant applications. Jan/Feb. p. 13.
• ***Summary:*** The key to the process is grinding the beans in unheated water under a vacuum to eliminate oxygen. ProSoya Foods International Inc., Ottawa, Canada recently announced that patents for a new process and equipment are pending in several countries and that a patent has recently been allowed in the U.S. for equipment to produce a non-beany tasting soymilk. To reduce oxygen to a few parts per million, a special air/water tight vessel was designed with a small hammermill grinder built into the bottom. The new cold-grind method produces soymilk and tofu as wholesome as the traditional cold-grind method, but without the beany flavor. Crown Iron Works Corp. of Minneapolis, Minnesota, in association with ProSoya, is developing equipment which will use the new process to produce non-beany tasting soy flakes.

For more information contact Raj Gupta, ProSoya Foods International Inc., 627 Gaines Dr., Ottawa, ONT, K1J 7W7, Canada. Phone: 612-745-9115.

1823. Davis, Bob. 1988. Light Foods and the tofu hot dog market in America (Interview). *SoyaScan Notes.* March 26. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** There are three major companies making tofu hot dogs for the U.S. market (not including Loma Linda and Worthington, which use isolates rather than tofu): Light Foods, Bob's company which originated the idea, has about 40% of the market, especially the West Coast. Lightlife Foods (formerly Tempehworks) has about 40%, especially East Coast, and Yves (from Canada) has about 20% nationwide.

Bob still has bad feelings about the way Lightlife Foods took away his East Coast market. Originally, Tempehworks was Light Foods' master distributor for tofu hot dogs on the East Coast. Then for about 6 months Tempehworks stopped paying for the product they were receiving. (They eventually paid later). Suddenly they dropped the Light Foods tofu hot dogs and came out with a competing product of their own, named Tofu Pups. It was quite similar except that it was free of egg whites. Tempehworks told many distributors and retailers that Light Foods was going or had gone out of business, as a way of getting them to switch products. Davis received letters from 35-40 stores and many

customers asking why he went out of business or why he started making Tofu Pups. Shortly thereafter Tempehworks changed its company name to Lightlife Foods, not much different from Light Foods. This combination of events destroyed the market for Light Foods' tofu hot dogs on the East Coast. They had no East Coast distribution for 6 months. Light Foods considered litigation, but didn't have the money. Now Light Foods is coming out with a new meatless hot dog containing no egg whites. Address: 12125 East Brookview Dr., Grass Valley, California 95945. Phone: 916-273-2218.

1824. *Soyanews (Sri Lanka).*1988. Soyanews to be published quarterly. 10(1):2. Jan/March.
• ***Summary:*** The editor of Soyanews writes, "Commencing 1988 *Soyanews* will be published quarterly instead of half-yearly. This welcome return to a quarterly publication has been made possible by generous assistance from Plenty Canada, who has graciously undertaken to bear the costs for printing on behalf of the Department of Agriculture."

1825. Vansickle, Janice. 1988. Soys take root in organic market. *Windsor Star (Essex County, Ontario, Canada).* April 9.
• ***Summary:*** Jon Cloud is a transplanted "dirt farmer" from mountainous Vermont and now the production manager for Soy City Foods. Their products include soymilk, tofu, tempeh, falafels, burgers, and granola. Cloud became a [Vietnam] war protestor while in college, and opted into being a 60's back-to-the-land disciple after burning out in the urban jungle. The Organic Crop Improvement Association in Ontario has attracted 300 members during its five years of existence and 50 now have their farms certified as organic. Includes a picture of Cloud with company products such as Grain Tempeh and Falafels. Address: Ontario, Canada.

1826. Acompañado, Marita F. 1988. IDRC supports soybean workshop. *PCARRD Monitor* 16(4):4-5. April.
• ***Summary:*** IDRC is the International Development Research Centre (IDRC) in Canada. The Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD) coordinated a workshop which aimed at developing and packaging a comprehensive nutrition-focused multi-disciplinary and interagency research and development (R & D) program on soybean. The soybean-based Nutrition Workshop, which took place in Puerto Azul, Ternate, Cavite on 27-28 April 1988, was made possible through the support of the IDRC in Canada. It was participated in by 25 agency heads/researchers. The group visited the Soybean Pilot Project site in Nueva Ecija. Address: Science Research Specialist, PCARRD, Philippines.

1827. Business Trend Analysts, Inc. 1988. The market for salad dressings, sauces and condiments. 2171 Jericho Turnpike, Commack, NY 11725. 260 p. Price: $750.
• ***Summary:*** Sauces include the following table sauces: Ketchup, meat (incl. steak, worcestershire, vegetable, and seafood sauces), barbecue, Mexican (incl. chili, taco, enchilada, etc.), prepared mustard, and soy and teriyaki. Gravies, dips, and dry sauce mixes are not included. Ketchup is the largest segment, about 40% of the total. It has grown at 4.6% annually from 1982-87, but growing faster during the same time are soy and teriyaki sauce (10.3%), barbecue sauce (11.4%), and Mexican sauce (9.2%). In 1977 soy and teriyaki revenues represented 3.1% of total sauce sales, compared to 6.7% in 1987. BTA expects the market to grow at 8.9% annually reaching $280 million in 1997. Kikkoman, the leading producer of soy sauce in the U.S. sells most of its product is the western portion of the country. In 1987 it launched a national ad campaign to expand to the rest of the country.

According to U.S. Dept. of Commerce statistics, sales of soy and teriyaki sauce (in million dollars) and market percentage have grown from $7.7 and 1.8% in 1972, to $25.0 and 3.1% in 1977, to $50.1 and 4.9% in 1980, to $98.1 and 6.0% in 1985, and to an estimated $132.0 and 7.0% in 1988. Other estimated market shares in 1988 were ketchup 39.2%, meat 19.6%, barbecue 14.4%, Mexican 12.1%, and prepared mustard 7.8%. Thus soy and teriyaki have the smallest share.

But the growth rate for soy and teriyaki sales have been slowing, in part due to lower inflation rates. The rate was 26.6% in 1972-77, 24.2% in 1977-82, 10.3% in 1982-87, and a projected 8.9% in 1987-97. In this latter period the growth rate is higher than for any other sauce category.

In 1987 for leading U.S. soy sauce producers, sales and market share were: Kikkoman Foods Inc. $49 million and 41% market share; La Choy Food Products (Subsidiary Beatrice/Hunt-Wesson) $43 million and 36%; Nabisco Brands Inc. (Subsidiary RJR Nabisco), maker of Chun King, $12 million and 10%. All others, $16 million and 13%. Note: Chun King Frozen Foods line was sold to ConAgra, Inc. (Omaha, Nebraska) in 1987. Nabisco still owns the soy sauce and other packaged goods. the U.S. soy and teriyaki market, an estimated 41%., with 1987 sales of $49 million.

According to Department of commerce statistics, U.S. imports of "thin" soy sauce have grown steadily from 13.3 million lb in 1978, to 15.9 in 1980, to 29.6 in 1985, and an estimated 40.0 in 1987. In 1986 roughly 38.9% of this came from Japan, followed by 26.9% from Hong Kong, 12.8% from China, 12.0% from Taiwan, and 9.3% from Others (incl. South Korea, Canada, and Philippines). These imports of 32.5 million lb in 1986 were worth $13.9 million. Between 1980 and 1986 roughly 2,500 lb/year of soy sauce have been exported, a negligible amount. The main

destinations were West Germany, Canada, and Mexico. Address: Commack, New York.

1828. Golbitz, Peter. 1988. Long life tofu: Wave of the future? *Soya Newsletter (Bar Harbor, Maine).* March/April. p. 7, 12.

• ***Summary:*** Morinaga Nutritional Foods, Inc., Los Angeles, California, and Kikkoman International Inc. of San Francisco, California, are both marketing long-life tofu, produced in Japan exclusively for export to the U.S. and other countries. (A Japanese governmental agency has forbidden the companies to market these products in Japan for fear that they threaten the existence of the fresh tofu industry, which consists of at least 30,000, small and localized, tofu shops.)

Kikkoman's product, Kikkoman Tofu, is also produced using a patented, though different process, packed in a foil retort pack. The product is produced by Kikkoman Corporation, at their Noda, Japan plant. The principle behind both products is really very simple. Cooled liquid soymilk is mixed with a heat reactive coagulant, packaged in a container, heated to activate the coagulant and then cooled. The major difference between Kikkoman's and Morinaga's product is when and where the sterilization of the package and product occurs.

Morinaga's process consists of: sterilizing the soymilk with UHT processing, cooling, adding coagulants glucono delta-lactone (GDL) and calcium chloride, filling into a sterile Tetra Pak, sealing, heating the package with water just hot enough to activate the GDL, and then cooling.

With the Kikkoman Tofu, the sterilization of the product is achieved after packaging. Coagulants GDL and calcium chloride are added. It is then filled into a retort pack, sealed, and heated at temperatures high enough to activate the coagulant and sterilize the finished product. Both the Kikkoman and the Morinaga tofus tend to be slightly more expensive than regular tofu. Silken (unpressed) tofu is unfamiliar in the U.S., and no company has yet come out with a pressed tofu that doesn't require any refrigeration.

Sales of Mori-Nu are up between 40 and 50% over last year, and unit sales of the product put Morinaga among the top five tofu companies in the U.S. Kikkoman's product has been on the market for more than a year and is also reportedly making healthy sales gains. Morinaga's product is currently being shipped to 36 countries world-wide, with the U.S. being the largest consumer by far. Kikkoman also reports that they are shipping their product to Europe, Australia and Canada, but again, the biggest volume is in the U.S. Address: Soyatech, Bar Harbor, Maine.

1829. Kikkoman International Inc. 1988. Kikkoman. Ahead of its time for 358 years (Ad). *Prepared Foods* 157(4):119. April.

• ***Summary:*** This 8.5 by 11-inch, color photo ad shows a large (20 fl oz) bottle of Kikkoman naturally brewed soy sauce against a black and purple background. Green, computer-graphics circles are superimposed on the bottle. "Since 1630, Kikkoman has produced premium, naturally brewed soy sauce that has yet to be equaled." Available from over 20 distribution centers in the U.S. and Canada.

This ad also appeared in the March 1989 issue (p. 5) of this magazine. Address: P.O. Box 784, San Francisco, California 94101. Phone: 415-956-7750.

1830. Koo, Winston W.K.; Kaplan, L.A.; Krug-Wispe, S.K. 1988. Aluminum contamination of infant formulas. *J. of Parenteral & Enteral Nutrition* 12(2):170-73. April. [17 ref]

• ***Summary:*** Aluminum concentration was measured in 175 samples of infant formulas. Among these, 5 brands of liquid soy formulas were tested. The aluminum content in micrograms per liter was as follows, first the range then the median: Isomil 603-1084 (756), Isomil SF 910-1460 (1286), Prosobee 684-2346 (1427), Nursoy 557-1840 (709), and Soyalac 455 (1 sample). Thus the soy-based liquid infant formulas were found to have 455 to 2,346 micrograms/liter of aluminum; the average value was 964 micrograms per liter of aluminum.

Three powdered soy formulas were tested. The aluminum content is given in micrograms per gram: Prosobee 5.3-10.2 (6.6), Nursoy 4.19-4.24 (4.22), and Soyalac 3.5 (1 sample).

"Aluminum content was lowest in human milk (less than 50 micrograms/liter), whole cow milk,... skim milk, and cow milk with 2% fat... We speculate that raw materials such as soybean, additives such as calcium and phosphorus, manufacturing processes and storage containers are potential sources of contamination of infant formulas.

"Aluminum is the third most abundant naturally occurring element, and the most common metallic element, comprising approximately 8.8% of the earth's crust. It is therefore not surprising that aluminum is ubiquitous in nature... Plants may accumulate different amounts of aluminum depending on the aluminum content and acid-base status of the soil. It is conceivable that soybeans could be a potential source of aluminum contamination for soy-based formulas. However, the extremely high aluminum concentration of milk formulas with highly modified protein, carbohydrate or fat contents and multiple additives would support the contention that manufacturing process and the additives such as calcium and phosphorus compounds are other potential sources of aluminum contamination...

"The renal excretion of aluminum is incomplete even in infants with normal renal function. Thus, it would seem reasonable to minimize the aluminum contamination of all nutrient sources, including infant formulas." Address: Dep. of Pediatrics, Univ. of Alberta, Edmonton, ALB, Canada,

and Dep. of Pathology and Lab. Medicine, Univ. of Cincinnati, Ohio.

1831. Lang, Kerri-Sue. 1988. A growth market for organic foods. *Country Guide (Winnipeg).* April. p. 20-22.
• ***Summary:*** In 1980, the USDA defined organic farming as "a production system that avoids, or largely excludes, the use of synthetically compounded fertilizers, pesticides, growth regulators and livestock feed additives to the maximum extent feasible. Organic farming systems rely upon crop rotations, animal manures, legumes, green manures, off-farm organic wastes, mechanical cultivation, mineral bearing rocks, and aspects of biological pest control to maintain soil productivity and tilth, to supply plant nutrients, and to control insects, weeds and other pests. The Organic Foods Production Association of North America (OFPANA) was founded in 1985. About 25 farmers contract organically-grown soybeans with Toronto-based Soy City Foods.

Organic food producers feel strongly that organic foods are healthier and more nutritious than conventionally grown foods, but scientific data does not yet support this claim. Ontario farmers requesting organic certification must have abstained from using prohibited fertilizers for at least one year and pesticides for 3 years. Prohibited fertilizers include anhydrous ammonia, ammonium nitrate, diammonium phosphate, most sewage sludge, triple superphosphate, muriate of potash, and potassium chloride. Prohibited soil additives include quick lime and slaked or hydrated lime.

Certified organic growers are inspected annually at their own expense ($150). They also sign a licensing agreement and pay a fee to use the Ontario association's logo. The logo fee is based on gross sales. Organic soybean yields last year were about 20% below the normal provincial average. Jon Cloud, part-owner of Soy City Foods in Toronto, says most of his contract growers experience a 25% yield reduction in their first 3 years of organic production. But a premium for the beans, along with reduced input costs, brings net returns to at least the level that could be expected under conventional crop management.

Last year, about 25 farmers grew organic soybeans on about 320 acres under contract with Soy City Foods. Highest yield was 45 bushels per acre; average was 32 bushels. Right now, says Cloud, the company could use 2,000 acres of organically-grown soybeans. Premium prices for organic beans are $8.50 a bushel. The firm produces several soy-based foods for human consumption. These include soy burgers, falafel (spicy patties traditional in some parts of the Middle East), a base for soy pate, tempeh, tofu, and soy milk. Contract growers are supplied with seed because Soy City wants beans with high protein and low oil content. Organic farmers don't spend $40 an acre on herbicides. Not do they put tonnes of commercial fertilizer on their fields. And they sell their crops at a 15% to 20% premium. Weeds, he adds, are controlled by non-chemical procedures such as crop rotation and cultivation, which cost little.

Hugh Martin, a soils and crops specialist with the Ontario Ministry of Agriculture and Food says organic farming will be a significant part of agriculture in the future. Most organic growers he works with have an ingrained stewardship ethic and are concerned about soil conservation. He says, "After about 5 years of organic farming, the organic matter content of soil increases. Improved porosity allows water to penetrate quickly. There's less runoff."

Color photos show the storefront of Soy City Foods "Soy Food Information Centre" and 3 of the company's products: Soyettes, Tempeh, and Falafels. Address: Winnipeg, Manitoba, Canada.

1832. **Product Name:** Tofu Pasta [Mixed Rotini, Whole Wheat Fettucine, Whole Wheat Spinach Fettuccine, Whole Wheat Herb Fettucine, Linguini, Buckwheat Linguini].
**Manufacturer's Name:** Sooke Soy Foods Ltd.
**Manufacturer's Address:** 2625 Otter Point Rd., R.R. 2, Sooke, Vancouver Island, BC, V0S 1N0, Canada. Phone: 642-3263.
**Date of Introduction:** 1988. April.
**Ingredients:** Herb Fettucini: Organic 100% whole wheat durum, organic tofu (organic soybeans, water, nigari [magnesium chloride–an extract of sea water]), herbs.
**Wt/Vol., Packaging, Price:** 320 gm / 11.3 oz.
**How Stored:** Refrigerated.
**New Product–Documentation:** Labels. 1988. 5.5 by 4 inches. Self adhesive. Blue, green, and yellow on white. "Quick 'n Easy. Cook in boiling salted water 3-4 minutes. Serve with favorite sauce and garden fresh vegetables." Introduced April 1988.

1833. **Product Name:** Herb Tofu.
**Manufacturer's Name:** Sooke Soy Foods Ltd.
**Manufacturer's Address:** 2625 Otter Point Rd., R.R. 2, Sooke, Vancouver Island, BC, V0S 1N0, Canada. Phone: 642-3263.
**Date of Introduction:** 1988. April.
**New Product–Documentation:** Letter from Wayne Fatt. 1988. Sept. 29. The product was introduced in April 1988.

1834. Gupta, Rajendra P.; Gupta, Rashmi R. Assignors to Prosoya Corp. (Maryland Heights, Missouri). 1988. Equipment for making no-beany flavor soymilk. *U.S. Patent* 4,744,524. May 17. 7 p. Application filed 1 April 1987. 3 drawings. [6 ref]
• ***Summary:*** "The equipment grinds soybeans totally in an aqueous medium at room temperature without trapping any air [but not in a vacuum], cooking the resulting slurry, and

separating the undissolved solids to extract soymilk. The fact that no heat needs to be given to soybeans prior to or during the grinding operation yields very high percentage of solids in soybeans as dissolved solids in soymilk without rendering chalkiness found in the soymilks made employing the hot ground and blanching methods.

Talk with Raj Gupta. 1988. The bean-to-water ratio is critical to the success of the process. Aug. 10. APV-Crepaco is making the equipment for them, and selling it for about $25,000 for a 90 liter/hour system. Address: [Raj Gupta, ProSoya Foods International Inc., 801-275 Slater Ave.], Ottawa, ONT, K1P 5H9, Canada. Phone: 613-745-9115 or 613-744-4401.

1835. *Graphic (Brooklyn, New York).*1988. The "scoop" on David Mintz, the father of Tofutti. May 25.
• ***Summary:*** David Mintz, a successful kosher caterer from Brooklyn, never believed tofu could change his life, but it has. In 1972, while searching for a milk substitute for kosher desserts, pastries, pies and sauces, he discovered tofu. In 1981, he introduced Tofutti ice cream to the world. More than 38,000 outlets in all 50 states–including supermarkets, health food stores, groceries, gourmet shops and department stores–carry the product. Tofutti is also available in Canada, Japan, Australia, Korea, Hong Kong, and the U.S. Virgin Islands.

1836. Haumann, Barbara F.; Baldwin, A.R. 1988. Feature. Update: Fats and oils industry changes. *J. of the American Oil Chemists' Soc.* 65(5):702-04, 706, 708, 710-13. May.
• ***Summary:*** Dramatic changes have occurred in the worlds' fats and oils industry during the past 25 years. U.S. soybeans, the major factor in world fats and oils trade in 1961, have encountered increasing competition from soybeans produced in South America as well as from palm oil, sunflowerseed and rapeseed. U.S. soybean dominance of world oilseed trade during the 1950s and 1960s began to crack in the 1970s. U.S. embargoes on soybean exports in 1973 and 1980 led Europeans, the Soviets and the Japanese to look for alternate sources of supply. They found Brazil and Argentina willing to learn how to grow soybeans for the export market. Ohio State University researcher Norman Rask has estimated total costs of producing a bushel of soybeans at $6.62 in the U.S., $5.39 in Brazil and $4.06 in Argentina.

In the world soybean market, Brazil's share of international trade has grown from 3% in 1981/82 to 14% in 1984/85; in the same time span, Argentina's market share rose from 6% to 13%. Meanwhile, the U.S. share declined from 82% to 65%. In world soybean oil markets, Argentina's share has grown from 3% in 1981/82 to 14% in 1984/85. Brazil's share has increased from 24% to 27%; the U.S. share has fallen from 27% to 20%. U.S. soybean growing area peaked in 1980 at 70 million acres. In recent years, it has declined, with only 56.4 million acres harvested in 1987. U.S. soybean accounted for 65.9% of all world oilseed trade volume in 1979/80. By 1986/87, its share had dropped to 55%. The 1982 Census of Manufactures counted 243 vegetable oil mills operating in the U.S. in 1982. Of these, soybean oil mills had increased to 137 establishments, versus 121 in 1977.

The U.S. Food and Drug Administration (FDA) in 1985 ruled that low erucic acid rapeseed oil could be used in food products in the U.S. The first company to act on this was Procter & Gamble, which in 1986 reformulated its Puritan cooking oil to contain 100% canola oil. The phenomenal increase in corn oil production has been due to enzymatic processes for high fructose corn syrup and a gas tax subsidy on fuel alcohol. Consolidation, mergers, buyouts, and restructurings have led to increasing concentration of capacity in the hands of a few international companies whose operations range from seed cultivation through shipping and export to complete processing. This has led to fewer locations that process larger quantities of oilseeds.

U.S. based soybean processors are expanding their foreign investments in an attempt to escape relatively high U.S. soybean prices as well as to circumvent trade barriers. These include Archer Daniels Midland Co. (ADM), Bunge, Cargill, and Continental Grain. Since 1982, ADM also has held a 45% interest in Alfred C. Toepfer International, a large commodities trading firm with headquarters in Hamburg, West Germany. In 1984, a National Institutes of Health panel recommended that Americans limit their cholesterol intake to less than 300 mg/day, fat intake to 30% of total calories in their diet, saturated fat intake to less than 10% of calories, and polyunsaturated fat intake to a maximum of 10% of calories.

There are a number of possible developments to watch during the next 20 years, including: Soybeans with low or zero linolenic acid; soybeans with higher yields (possibly hybrids) with broader adaptability to increase overall production; increased consolidation of oilseed processing. As world markets for oilseeds and oilseed products increase, market shares for soybeans and soybean products will decline. Address: JAOCS.

1837. *Ontario Export Soybeans (OSGMB).*1988. General historical overview [of soybeans in Ontario]. 1(1):1. May.
• ***Summary:*** Concerning exports: Ontario has been exporting soybeans since at least the 1950s and likely prior to the dates shown (1960-64). It is not unreasonable to say that Ontario has been involved in exporting soybeans almost since it started producing them.

A table shows that during the 5 crop years 1960-1964, Ontario exported on average 65,090 tonnes/year; this was 42.8% of marketings. From 1965 to 1974 Ontario soybean exports decreased, both in absolute terms and as a percentage of marketings, falling to 24,307 tonnes in 1970-

74, only 8.0% of marketings. Then both figures began to rise. In 1985-86 exports averaged 169,277 tonnes/year, or 17.1% of marketings. Address: Chatham, Ontario, Canada.

1838. *Ontario Export Soybeans (OSGMB).*1988—. Serial/ periodical. Chatham, ONT, Canada: Ontario Soybean Growers' Marketing Board. Vol. 1, No. 1. May 1988. Biannual.

• ***Summary:*** Talk with Fred Brandenburg of OSGMB. 1992. June 11. This periodical started in May 1988 and is published about twice a year in May and October. By Oct. 1991 (Vol. 5, No. 1) it was printed with green and black ink on yellow paper, 1 page, front and back. It is different from the OSGMB Newsletter, and is sent mainly to the people and organizations with whom OSGMB has made contact in its export market development.

Continued by *Canadian Export Soybeans* in May 1994 (Vol. 7, No. 2). This bi-annual newsletter was formerly 2 pages, green on yellow; it is now 4 pages, dark green and brown on tan. Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

1839. Ontario Soya-bean Growers' Marketing Board. 1988. Report on export market development mission of the Ontario soybean industry, March 19th–April 3rd, 1988. Chatham, Ontario, Canada. 23 p. May. 28 cm. Spiral bound. [Eng]

• ***Summary:*** This report was prepared by Owen Dobbyn, John Cunningham, Maurice Waddick, and Fred Brandenburg of OSGMB. Contents: Japan. The Japanese soybean market. Visits: Japan Miso Co-operative Industrial Assoc. (M. Iida, chairman), Japan Packaged Tofu Assoc. (H. Kijima, Exec. Secy.), Federation of Japan Natto Manufacturers Cooperative Society (Mr. Ohse), Takano Foods Co. Ltd. (E. Takano, president, uses 7,000 to 8,000 tonnes of soybeans annually to make natto), Home Foods Co. Ltd (Home Shokuhin, Y. Murai. managing director, has 160 employees and 3 tofu factories that use 300 tonnes of soybeans/month; owned by Wako Shokuryo, the #1 wholesaler of soybeans in Japan), Japan Oilseed Processors Assoc. (JOPA; H. Higashimori, managing director). Japan Oil and Fat Importers & Exporters Assoc. (JOFIEA; I. Shimizu, exec. director), Canadian Embassy, Tokyo.

Hong Kong. Soybean imports. Visits: The Hong Kong Soya-Bean Products Co. Ltd. (makers of Vitasoy soymilk), Amoy Industries (International) Ltd.

Malaysia. Soybean imports 1984, 1985, 1986. Visits: Ace Canning (owned by Lam Soon). Yeo Hiap Seng (Malaysia) Berhad (soymilk), Cheong Chuan (Hup Kee) Sdn. Bhd. (traditional fermented soysauce), Sin Yong Huat Enterprises Sdn. Bhd. (soybean importers), Syarikat Perniagaan Cheon Fatt (tofu manufacturer).

Singapore. Soybean imports (1983-1986). Visits: Sin Seng Lee Trading Co. (Pte.) Ltd. (claims to import 60% of soybeans to Singapore). Conclusions for each country. Recommendations for future action. Future export development missions. Accomplishments. Competition.

In Japan, 842,000 tonnes soybeans are used to make foods, as follows (in tonnes, p. 1): Tofu 456,000, miso 180,000, natto 90,000, dried-frozen tofu 30,000, boiled soybeans 23,000, soybean powder [probably kinako] 10,000, soymilk, 7,000, soysauce 5,000, other 41,000. The suppliers of these edible soybeans are (in tonnes): USA 400,000, China 280,000, Japanese domestic 280,000, Canada 24,000. Total Japanese soybean imports: 5,000,000 tonnes. Of this 4,036,000 tonnes (81%) are used for crushing, 842,000 tonnes for food, and 70,000 tonnes for feed (not crushed). The Japanese market for soybeans is very large for both crushing and food use, but is not growing. The beans for crushing come mostly from the USA and South America.

Preferred characteristics of soybeans for each type of soyfood are given. For example, for miso: Low oil, high protein, high sugar, white hilum. For tofu: High sugars (glucose, sucrose), moisture content 10-12.5%, new crop preferred to old, protein 40%, oil 19-20%, hilum color is not very important but white is preferred, varietal consistency; preferred varieties are Beeson, Amsoy, Corsoy. Natto: Most important is small size, 5.5 mm or less, clean beans free of foreign material, high sugar content (saccharose, stachyose, which bacillus needs to work), less oil, must absorb water well. Soymilk: Good flavor, low moisture (10%), low percentage of splits (too high can cause rancidity), low oil, high protein.

In Japan, vegetable oil consumption has increased 2.5 times in the past 20 years to 45.17 gm/capita/day in 1986. Soyoil and canola oil together account for 85% of production. Canola is replacing soybean oil. If the oil market is strong, the 30 Japanese crushers crush more canola, but if protein is strong they crush more soybeans. U.S. soybeans have too much foreign material; new contracts have a penalty for > 2% FM.

In Hong Kong, 6,000,000 cases of Vitasoy brand soymilk are produced annually. The company uses 2,500 tonnes/year of soybeans, 80% of which are grown in Canada. It uses 100 to 200 tonnes of organic soybeans for Vitasoy exported to U.S. health food stores. Using 15 Tetra Pak machines, production takes place 24 hours/day (3 shifts), 6 days a week. Contacts: Patrick Cheung (marketing manager), and Raymond Yuen (commercial manager).

Amoy Industries, the largest maker of soy sauce in this part of the world, produces 6,000 tonnes/year. The company was established 80 years ago in Amoy, eastern China, moved to Hong Kong in 1949; 50% was purchased by Pillsbury in 1983. Uses 2 containers of soybeans/week, 100% from Ontario for the past 5 years.

Malaysia soybean imports rose from 174,400 tonnes in 1984 to 255,200 tonnes in 1986. The main suppliers in 1986

were China (56.2% of total), Vietnam (15.8%), and Argentina (14.3%). Ace Canning uses ton tonnes/month of soybeans (presently all from China) to make soymilk. They have 7 Tetra Pak machines. Yeo Hiap Seng (Malaysia) is the largest soymilk producer in Malaysia, making 25,000 liters/year using 9 Tetra Pak machines. They use 1,250 tonnes of soybeans (80 containers) per year, all Canadian.

In Singapore, soybean imports rose from 28,287 tonnes in 1983 to 41,571 tonnes in 1986. In 1986, some 66% came from Canada, 16.6% from China, and the rest from others.

The major competition for food quality soybeans in these four countries at present comes from China. The Chinese have improved their soybean quality and appear to be actively seeking to increase their market share. In the long run, however, China may choose to reduce its soybean exports in order to increase meat consumption in China. This could lead to new market opportunities for Canada in these four countries. Address: P.O. Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

1840. *Plenty Canada News (Lanark, Ontario, Canada).*1988. Guatemala Project. Spring. p. 1.
• ***Summary:*** In the Quiche area of Guatemala, the Soy Dairy is a multifaceted facility, one of the prime aims of which is to provide training. Instruction is provided to villages and technicians from other development organizations. One of the most successful marketing schemes is the ice cream carts; one-person operations which sell a variety of local fruit flavored soy ice cream popsicles. Each one of these merchants is able to generate enough income to support his/her family. Address: R.R. 3, Lanark, ONT, Canada KOG 1KO.

1841. *Plenty Canada News (Lanark, Ontario, Canada).*1988. Soy promotion project in Sri Lanka. Spring. p. 3.
• ***Summary:*** Soy promotion project in Sri Lanka. Plenty Canada's soy utilization project in Sri Lanka is designed to assist Sri Lankans to use soy products for human consumption. This is achieved by using an integrated approach learned through Plenty Canada's experience in Central America, the Caribbean and Africa. The first stage of this five-year project was to set up a Soy Centre in Kandy to retail, and thereby popularize soy-based products. Soy Centre in Kandy was officially opened on Nov. 13, 1987. Plenty Canada's two volunteers and eight Sri Lankan counterparts have been busy producing a wide range of soyfoods for retail and wholesale consumption (flour, dhal, flakes, splits, dried tempeh and cocktail snacks).

At the Centre people can also learn methods of processing, retailing, and ways to set up their own income-generating activities. Demonstrations are given in near village communities. Address: R.R. 3, Lanark, ONT, Canada KOG 1KO.

1842. *Plenty Canada News (Lanark, Ontario, Canada).*1988. Caribbean conference [held by Plenty Canada on soyfoods]. Spring. p. 5.
• ***Summary:*** Plenty Canada's Soybean, Agricultural & Soy Processing Conference was held in the Commonwealth of Dominica from Oct. 27 to 30, 1987. The workshop/seminar had three major objectives: 1. To identify the major areas of success and problems in implementing Agriculture and Soy processing programmes in the Caribbean region and Guatemala. 2. To seek solutions for these problems. 3. To foster more direct and continuing communication among the participants and their colleagues in the four different countries. The St. Lucian Soy Technician demonstrated the use of sea water as a curding agent [for tofu] instead of calcium sulphate or magnesium sulphate which has to be imported. The conference was attended by at least 11 delegates from Plenty Canada's projects in St. Lucia, Jamaica and Guatemala. A photo shows the 11 attendees. Address: R.R. 3, Lanark, ONT, Canada KOG 1KO.

1843. Yu, Stephen. 1988. Victor Food Products, Ltd. (Toronto, ONT), Canada's largest tofu manufacturer, is bankrupt (Interview). *SoyaScan Notes.* June 6. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The company went bankrupt in July 1987. The equipment will be auctioned off on 21 June 1988. The causes of the bankruptcy: Overexpansion. He was trying to grow too fast. He had arrangements and contracts with a client, who did not fulfill his commitment. He overexpanded because of that contract.

He was an early tofu company in Canada but not the first one. He does not know if he will go back onto the soyfoods field. He is now working at the business of one of his brother in laws. He must sell the company to pay off large company and personal debts. It was a tremendous personal disaster, touching him more than the company. Address: Kitchener, Canada. Phone: 519-741-0922.

1844. Lamron Sales. 1988. Public auction: Dairy and food processing equipment (Ad). *Toronto Star (Ontario, Canada).* June 20. p. B4.
• ***Summary:*** "We have been instructed by Laventhol and Horwath Limited Receiver-Manager to liquidate the assets of Victor Food Products Limited and Tofu Masters Inc. In detailed lots. Tuesday, June 21, 1988, 10:00 a.m. 102 Hymus Road, Scarborough, Ontario."

Gives the name of each piece of equipment.

1845. Noble Bean. 1988. Noble Bean Tempeh Products (Ad). *Vegetarian Times.* June. p. 70.
• ***Summary:*** "Coast to coast. Cultured, organic soybeans and grains. An excellent source of protein. Made with TLC

[tender loving care] & country fresh spring water. Culturing fine tempeh since 1979."

Note: This is the earliest document seen (Jan. 2010) concerning the Noble Bean (company) and tempeh. Address: R.R. 1, McDonalds Corners, ONT, K0G 1M0, Canada. Phone: 613-278-2305.

1846. *Soya Newsletter (Bar Harbor, Maine).*1988. New process for culturing tofu available. May/June. p. 10.
• ***Summary:*** A new process to culture tofu into a yogurt-type food is available for sale or licensing by Steve Rowat of Yofu Development (Canada). The process, which has a Canadian patent and a patent pending in Japan, is titled, "Process Permitting the Culturing of Tofu with Yogurt-Forming Bacteria". Contact: Steve Rowat, Yofu Development (Canada), Box 93, Merricksville, ONT, Canada K0G 1N0. Telephone: 613-269-4483. Address: Yofu Development (Canada), Box 93, Merrickville, ONT, K0G 1N0. Phone: 613-269-4483.

1847. Udesky, James. 1988. The book of soba. Tokyo and New York: Kodansha International. 166 p. Foreword by William Shurtleff. Illust. Index. 27 cm. [50* ref]
• ***Summary:*** Contents. Foreword. Introduction. I. Making soba. Homemade soba noodles. Broth. Noodle dishes. Country cooking. Groat cooking. Variations and desserts. Ingredients. II. About soba. Nutrition. Buckwheat: From seed to table. History. III. Appendices. The soba dining experience. Selected soba restaurants in Japan. Oriental, natural, and specialty food stores in the United States and Canada. Bibliography.

Soy-related recipes include: Deep-fried tofu pouches in "Fox Soba" (kitsune soba). White miso in broiled soba dumplings with miso sauce. Soba noodles in miso stew. Cold soba noodles with natto and sesame. Natto in soba pasty. Soy-Soba noodles (with raw whole soybeans). Soy sauce is used in many recipes.

The excellent "Ingredients" section (p. 91-98), gives definitions of several soyfoods, including miso, natto, okara, soy sauce, tofu, and tofu–thin deep-fried (abura-age, usu-age). The definition is especially good: "Natto: This rich soybean product with a cheeselike flavor is still underestimated, unappreciated, and misunderstood, mainly because the sticky 'threads' resulting from its special fermentation process are strong and stubborn, making it pretty tricky for beginners to eat. Natto can be made easily at home with soy beans, 'natto spore' (now available at major health-food dealers on both coasts), a pot, and a box... If allowed to sit too long on store shelves, the beans become overripe. Although you cannot check the quality until you open up the package at home, the best natto should have a light, tannish color and still be moist and a little puffy. Too dark a color indicates overripening and a correspondingly bitter taste. To remedy this situation somewhat, stir the beans together with chopsticks or a spoon and combine with chopped onions, wasabi horseradish, and soy sauce. Since this food is the result of bacterial action, no preservative can be used. Thus, natto should be eaten as soon as possible."

Mr. Udesky had a chance to prepare homemade soy sauce while living with Mr. Noboru Muramoto (author of *Healing Ourselves)* from 1971 to 1975.

For a complementary review, see Jean Pearce. 1991. Nov. 10. *Japan Times.*

Letter from James Udesky. 1997. April 21. The hardcover edition of *The Book of Soba* has now sold 12,000 copies in Japan and abroad, and 3,000 copies of a new soft-cover pocketbook edition (246 p.; 18.2 cm) was published by Kodansha International in Dec. 1995. An article on soba titled "The Art of Noodles," by Udesky appeared in *Japan Quarterly* (April-June 1997, p. 32-42; it contains a large color photo of him rolling out soba dough). Udesky is living in Tokyo, has lived in Japan (except for a 3-month break in 1988) since 1988, married a Japanese woman in 1990, for the last 2 years has worked for a medical equipment importer and taught English part-time at Dentsu Inc. to survive financially, has established a company named Udesky Communications, and continues his practice of making traditional Japanese soba. He has plans for a new book titled "Basic Techniques of Udon Making." Address: Heim R1 #103, Meguro Honcho 6-18-3, Meguro-ku, Tokyo 152, Japan. Or: The Soba Center, P.O. Box 72, Winnetka, Illinois 60093-0072.

1848. Angus Reid Associates Inc. 1988. Ontario soybean growers' attitudes and opinions regarding issues associated with export assistance–Results of an opinion survey. Canada. 25 + 6 + 111 p. July. 28 cm. Spiral bound.
• ***Summary:*** 1. Executive summary: Study highlights, implications. 2. Introduction: Research objectives, research approach.

3. Study findings: Sample description (respondent age, farm size), federal government performance (voting patterns, overall government performance, handling of selected agricultural issues, performance of elected representatives), soybean and canola industries (issues confronting the soybean industry, export assistance, canola industry perceptions), support for oilseed processors (importance of processors, Ontario Oilseed Industry Association).

Appendix A: Questionnaire. Appendix B: Detailed tables.

"On an unaided basis nearly equal proportions of soybean growers perceive the two major problems facing the soybean industry are poor crop prices [including high crop input prices] and the need for export opportunities for soybeans." Address: Canada.

1849. IDRC/IITA/IAR&T. 1988. Soybean utilization project: Annual progress report 1987–1988. Ibadan, Nigeria: International Institute of Tropical Agriculture (IITA). 21 p. July.
• ***Summary:*** IDRC is the International Development Research Centre of Canada. IAR&T is the Institute for Agricultural Research and Training at the Obafemi Awolowo University. Contents: Introduction. Documentation of the status of soybean utilization in Nigeria (specific objective A). Development of household level technology (specific objectives B and D): Development of recipes, setting up relevant assays and training of technical staff, nutritional evaluation of soy foods, training of extension home economist, training in project villages, activities of the trained government social development officers. Future program. Address: IITA, PMB 5320, Oyo Road, Ibadan, Nigeria.

1850. Perera, A.M.S. 1988. Re: Soyanews print runs. Letter to William Shurtleff at Soyfoods Center, Sept. 21. 1 p. Typed, with signature on letterhead.
• ***Summary:*** Soyanews is now once again printed quarterly with assistance from Plenty Canada. The print runs for the three languages in which it is printed are English 7,500 copies, Sinhala 25,000 copies, and Tamil 7,500 copies. Address: Editor Soyanews, Education & Training Div., Dep. of Agriculture, P.O. Box 10, Peradeniya, Sri Lanka. Phone: 08-88340.

1851. **Product Name:** [Tofu Filaments].
**Foreign Name:** Filaments du Tofu.
**Manufacturer's Name:** Les Aliments Horium Foods Inc.
**Manufacturer's Address:** 1050 rue Lacasse Street, C1-18, Montreal, QUE, H4C 2Z3, Canada. Phone: 514-933-4605.
**Date of Introduction:** 1988. September.
**Ingredients:** Organic soybeans, natural salt or sea salt, purified water.
**How Stored:** Refrigerated.
**New Product–Documentation:** Form filled out by Mr. Chong-Hong Ho, owner. 1988. Nov. 11. The product was launched several months ago.

1852. *Soyanews (Sri Lanka).*1988. Soya foods at Katugastota Mahapola. 10(3):5. July/Sept.
• ***Summary:*** "In the second week of August, 1988, the Plenty Canada Soya Food Centre extended its popularising activities to the Mahapola held at St. Anthonys' College, Katugastota with great success. Those who visited the Plenty Canada Soya Stall had the choice of a wide array of snacks to choose from, including cutlets, rolls, dhall, tempeh sticks, soya toffee, aluwa and coffee.

"Freshly prepared soya coffee proved to be one of the most popular drinks... Because of its good taste and affordable price, almost everyone who visited the stall had a cup of coffee and took a packet home."

1853. *Soyanews (Sri Lanka).*1988. Harnessing the sun for better nutrition. 10(3):1. July/Sept.
• ***Summary:*** "Tempeh, produced in Indonesia for hundreds of years, has recently found favour in Sri Lanka as a high quality substitute for dried fish. It has also proven popular in dishes calling for eggplant, baby jack and chicken." When dried to a moisture content of 12%, it has a long shelf life without refrigeration. Now Plenty Canada, working in cooperation with the Intermediate Technology Development Group (I.T.D.G.) and Sarvodaya, have developed a low cost solar powered cabinet dryer, which dries tempeh in less than half the time of traditional techniques with no losses to birds or insects. Plenty Canada hopes to introduce their new solar powered dryers to village and farm groups interested in the production of commercial quantities of dried tempeh.

1854. Bernard, Richard L.; Juvik, Gail A.; Hartwig, Edgar E.; Edwards, Calton J., Jr. 1988. Origins and pedigrees of public soybean varieties in the United States and Canada. *USDA Technical Bulletin* No. 1746. 68 p. Oct. [20 ref]
• ***Summary:*** Contents: Old domestic varieties. Modern domestic varieties from public institutions. Germplasm resources information network. Tables: 1. Number of U.S. and Canadian soybean varieties by maturity group. 2. Number of U.S. and Canadian soybean varieties by country of origin. 3. Origins and pedigrees of old domestic soybean varieties. 4. Lost old domestic soybean varieties. 5. Literature on old domestic soybean varieties in chronological order. 6. Origins and pedigrees of modern domestic soybean varieties from public institutions. 7. Genetic information on backcross-derived public soybean varieties. 8. Genetic information on backcross-derived soybean parental lines. 9. Public soybean variety registrations and licenses. 10. Corrections to published pedigree information.

Abstract: "In this report are described the origins of the 440 U.S. and Canadian soybean varieties that are maintained in the USDA Germplasm Collection at Urbana, Illinois, and Stoneville, Mississippi. Varieties in commercial use before the mid-1940's were mostly introductions, and this report includes for each the geographic place of origin, the person or institution that provided the seeds, the foreign variety name (if any), as well as information about when it was released and who released it in the United States or Canada. Modern varieties have been developed by hybridization and selection. In this bulletin, the pedigree is specified and where and when each variety was developed and released. This information allows researchers and breeders to trace modern soybean varieties back to their introduced ancestors and facilitates breeding plans and

evaluation of the germplasm base of the current commercial soybean crop."

Table 4, titled "Lost old domestic varieties," lists the source of each: Acme–PI 14.954 from Shanghai, China, in 1905. Akasoya–From Japan via Indiana. Allison Black–D.T. Allison, Tennessee. Amherst–PI 4.913 (PI 17.275) from Japan in 1900. Arikara–O. Will Company, North Dakota. Arkan–PI 87.050 from Niummen, Keisho Nando, Korea, in 1930. Arksoy 2913–Arkansas Experiment Station, Marianna (similar to 'Arksoy'). Auburn–PI 21.079A from Tieling, Manchuria, China, in 1907. Baird–PI 6.414 (PI 22.333) from Pyongyang [P'yongyang], Korea, in 1901. Biltan–Selection from 'Otootan', South Africa.

Brindle–PI 20.407 from Merkoechofka, Siberia, in 1906. Brooks–PI 16.789 from Hangchow, China, in 1905. Brownie–PI 6.414 (PI 17.256) from Pyongyang, Korea, in 1901. Buckshot–PI 6.334 (PI 17.251) from Tokyo, Japan, in 1901. Burnette–From Farmville, North Carolina. Butterball–PI 8.433 (PI 17.273) from Japan in 1902, via Rhode Island AES [Agricultural Experiment Station] in 1903. Chame–PI 80.473 from Tokyo, Japan, in 1929. Chang–PI 54.610-2 from Changchun, Kirin, China, in 1921. Chernie–PI 18.227 from Khabarovsk, Siberia, in 1906. Chinaton Echo–From Harrow, Ontario, Canada.

Chiquita–PI 27.707 from Hankow, China, in 1910. Chuku–La Choy Company, Ohio. Cibao–From El Salvador. Delnoshat–Delta Station selection 6679, Mississippi. Delredo–From Mississippi. DeSoto–Ohio farmer. Dortchsoy No. 2–Dortch Seed Company, Arkansas (selected from 'Ogden', similar to 'Ogden'). Dortchsoy No. 6–Dortch Seed Company, Arkansas. Dortchsoy No. 7–Dortch See Company, Arkansas. Doxie–Georgia Experiment Station.

Duggar–PI 17.268C, a selection from 'Ito San.' Early Brown–PI 25.130 and PI 25.161 from Tennessee AES and Indiana AES in 1909. Eda–PI 17.257 from Japan in 1890. Edgecombe–R.P. Cocke, Williamsburg, Virginia. Edna–PI 6.312 (PI 17.252C) from Tokyo, Japan, in 1901. Edward–PI 14.953 from Shanghai, China, in 1905. Fairchild–PI 19.184 from Newchwang, Manchuria, China, in 1906. Farnham–PI 22.312 from Shanghai, China, in 1908. Feed All–A.M. Johnson, North Carolina. Flat King–PI 6.312 (PI 17.252) from Tokyo, Japan, in 1901.

Flava–PI 16.789A from Hangchow, China, in 1905. Gala–Georgia Experiment Station. Gem–P.B. Hutchins, Missouri. George Washington–From Virginia. Giant Yellow–PI 22.415 from Naples, Italy, in 1908. Golden–Harrow Experiment Station, Ontario, Canada. Goshen Prolific–Farmer selection, North Carolina. Hamilton–From USDA number 23 by Ohio Experiment Station in 1909. Hankow–PI 6.559 from beyond Chiu Niu, China, in 1901. Hansen–PI 20.409 from Merkoechofka, Siberia, in 1906.

Hay Boy–Farmer selection, North Carolina. Herman–From North Carolina. Hiro–PI 86.038 from Obihiro, Hokkaido, Japan, in 1930. Hope–PI 6.335 (PI 17.267) from Tokyo, Japan, in 1901. Ignotum–E.E. Evans, Michigan. Italian–Canada Experiment Station. Ito San–PI 17.268 from Japan in 1890. Jet–PI 17.861 from Sachon, China, in 1906. Johnsoy–A.E. Johnson, North Carolina. Kentucky A–Kentucky Experiment Station selection.

Kia–Illinois Experiment Station selection. Kungchuling–From Manchuria, China. Looney No. 2–Farmer selection, Tennessee. Lowrie–PI 22.898A from Paotingfu, Chihli, China, in 1908. Loxitan–Delta Experiment Station selection, Mississippi. Ludeke–Farmer selection, North Carolina. LZ–Louisiana Experiment Station selection. Mammoth Brown–Unknown. Manhattan–PI 6.333 (PI 17.277) from Tokyo, Japan, in 1901. Matthews–Farmer selection, Georgia.

Merko–PI 20.412 from Merkoechofka, Siberia, in 1906. Meyer–PI 17.852 from Peking, China, in 1906. Midunk–Funk Brothers Seed Company, Illinois. Mikado–Farmer selection, Indiana. Misstucky–Farmer selection, Kentucky. Morgan–PI 22.633 from Sheklung, Kwongtung [Kwangtung / Guangdong], China, in 1908. Mount Carmel–PI 70.218-2 from Wuchiatzu, Manchuria, China, in 1926. Mukden No. 4–Wisconsin Experiment Station selection. Nanking–PI 71.597 from Nanking, China, in 1927 (see CNS, p. 6). Nanksoy–PI 104.881 from Nanking, China, in 1934.

Nansemond Early–Farmer selection, Virginia. Natsu–PI 19.984 from Yokohama, Japan, in 1907. Nemo–PI 19.985 from Yokohama, Japan, in 1907. Nielsen–PI 22.644B from Hangchow, Chekiang, China, in 1908. Nigra–PI 22.407 from Hong Kong, China, in 1908. Nuttall–PI 6.416 (PI 17.253) from Pyongyang, Korea, in 1901. Okute–PI 19.986 from Yokohama, Japan, in 1907. Oloxi–Coker's Seed Company, South Carolina. Otoxi–From South Africa. Ozark–PI 37.272 from Kogen Province, Korea, in 1914.

Pee Dee–Coker's Seed Company, South Carolina. Pingsu–PI 18.259 from Tschang-ping-tsu, China, in 1906. Preston–Virginia Experiment Station selection. Quillian–Farmer selection, Oklahoma. Rattlesnake–Kentucky Experiment Station selection. Riceland–PI 20.797 from Shanghai, China, in 1907. Rila–Marsh Foundation, Ohio. Sainte Anne–Canada Experiment Station selection. Samarow–PI 17.260 from J.M. Thorburn and Company in 1902. Saskatoon–Farmer selection, Canada.

Sedo–PI 23.229 from Tientsin, Chihli, China, in 1908. Sherwood–PI 17.862 from Tientsin, China, in 1906. Southern Green–PI 62.839 from Nanking, China, in 1925. Southern Prolific–PI 37.250 from Keiki Province, Korea, in 1914. Stuart–PI 22.644 from Hangchow, Chekiang, China, in 1908. Summerland–Canada Experiment Station selection [British Columbia]. Suru–PI 89.128 from Kyojo, Korea, in 1930. Swan–PI 22.379 from Canton, Kwangtung, China, in 1908. Taha–PI 21.999 from Boshan, Shantung, China, in 1907. Tanloxi–Delta Station selection 483, Mississippi.

Tashing–PI 20.854 from Harbin, Manchuria, China, in 1907. Tensas–PI 104.881 from Nanking, China, in 1934 (same as Nanksoy). Texoil–Farmer selection, Texas. Tinzan–From Australia. Trenton–PI 24.610, a selection from 'Mammoth (Yellow)' in Kentucky in 1904. Trinitaria–From El Salvador. U.S.-5–PI 54.563-5 from Jungchiangko, Shengking [Liaoning], China, in 1921. Vilnensis–From Poland. Vireo–PI 22.874 from Tokyo, Japan, in 1908. White Eyebrow–PI 30.745 from Wulukai, Kirin, China, in 1911.

Yellow Biloxi–North Carolina Experiment Station selection. Yokotenn–PI 19.981 from Yokohama, Japan, in 1907. Yosho–PI 6.314 (PI 17.262) from Tokyo, Japan, in 1901.

Talk with Dr. Richard Bernard. 1998. July 12. He considers this to be his best publication on this subject, but it is quite similar to *INTSOY Series* No. 30 titled "USDA soybean germplasm collection inventory. Vol. 1," published in August 1987. Address: 1-2. Urbana, Illinois; 3-4. Stoneville, Mississippi.

1855. Bernard, Richard L.; Juvik, Gail A.; Hartwig, Edgar E.; Edwards, Calton J., Jr. 1988. 1988. Origins and pedigrees of public soybean varieties in the United States and Canada: Introduction (Document part). *USDA Technical Bulletin* No. 1746. 68 p. Oct. See p. 1-2.

• ***Summary:*** In the Introduction, the section titled "Old domestic varieties" states: "In table 3 are listed 204 strains (140 north and 64 south) of old domestic varieties. Most of them were developed of sponsored by public institutions, but a few are from private individuals, seed companies, or other private sources and are included here to provide a complete list of varieties developed before 1947. Many of them were of foreign origin and were grown commercially exactly as introduced, whereas others were selections from seed lots that were heterogeneous when introduced or that became heterogeneous after introduction, probably by outcrossing or mixture. The ancestry of several may be traced to the same introduction. For example, there are 18 varieties derived from PI 30.593 (Manchu). Some of the names reflect their common origin: A.K. and A.K. (Harrow); Manchu, Hudson Manchu, Montreal Manchu, Manchu 3, Manchu 606, and Manchu 2204; Manchuria, Manchuria 13177, and Manchuria 20173; Mandarin, Mandarin (Ottawa), and Mandarin 507; and Wilson, Wilson-Five, and Wilson-6."

"Also included in table 3 are old domestic varieties selected from hybrids of known parents. The first of these hybrids was Ogemaw developed in 1902 [by E.E. Evans of West Branch, Michigan]. Little is known of this early breeding work and the two parental varieties are not in the collection. Several selections from natural crosses in Mammoth Yellow with presumed known male parents were released in the 1920's in Mississippi and South Carolina (Mamloxi, Mamotan 6640, Mamredo, and Yelredo).

"Modern soybean variety development using hybridization followed by selection began in 1939 with the release of Pagoda, developed by F. Dimmock at the Canada Department of Agriculture in Ottawa, followed the next year by the release of Chief, developed by C.M. Woodworth at the Illinois Agricultural Experiment Station (AES), and Ogden, developed by H.P. Ogden at the Tennessee AES. During the 1940's there were eight additional selections from known hybrids: Lincoln and Viking at the Illinois AES; Gibson at the Indiana AES; Tennessee Non Pop and Volstate at the Tennessee AES; Capital at Ottawa, Canada; and Acadian and Nela at the Louisiana AES... All varieties in table 3 were developed prior to 1950 except two foreign introductions from the mid-1960's (Miller 67 and Patterson) and a 1966 release of a reselection (Wilson-6) from an old introduced variety."

"The Soybean Germplasm Collection was started in 1949 [at Urbana, Illinois]. All old U.S. and Canadian varieties and foreign (FC and PI) strains were sought throughout the country. Many old domestic varieties, including some of the most popular ones such as Ito San, had been discarded and could not be found. These lost varieties are listed in table 4..." Address: 1-2. Urbana, Illinois; 3-4. Stoneville, Mississippi.

1856. Bernard, Richard L.; Juvik, Gail A.; Hartwig, Edgar E.; Edwards, Calton J., Jr. 1988. Origins and pedigrees of public soybean varieties in the United States and Canada: Public soybean variety registrations and licenses (Document part). *USDA Technical Bulletin* No. 1746. 68 p. Oct. See p. 62-67. [4 ref]

• ***Summary:*** This very interesting long table is divided into two parts. Part I lists nine "old domestic varieties" of soybeans. For each variety it gives the name (listed alphabetically), the registration or license number (from 1 to 18), and the reference–from 1943 to 1955. Most references in this section (from 1943-52) are in the *Journal of the American Society of Agronomy*–which in 1953 was renamed *Agronomy Journal.* The first soybean variety to be registered was Boone, in 1943.

Part II lists about 5 pages of "modern public varieties." The same format is used. For registrations from 1953 to 1960, this information appears in the *Agronomy Journal.* Thereafter it appears in *Crop Science*–starting with Registration No. 34. Canadian varieties are registered in the *Canadian J. of Plant Sciences.*

The Canadian varieties are: Acme (1960), Altona (1966), Bicentennial (1986), Comet (1960), Crest, Harcor (1976), Hardome, Harlon (1976), Harosoy (1955), Harwood (1971), Maple Amber, Maple Arrow, Maple Donovan, Maple Isle, Maple Presto, Maple Ridge, Merit (1960), Morsoy (1970), OAC Aries (1987), OAC Libra (1986), OAC Pisces (1986), OAC Scorpio (1987), Portage (1966),

Vansoy (1972). Address: 1-2. Urbana, Illinois; 3-4. Stoneville, Mississippi.

1857. Bernard, Richard L.; Juvik, Gail A.; Hartwig, Edgar E.; Edwards, Calton J., Jr. 1988. 1988. Origins and pedigrees of public soybean varieties in the United States and Canada: Table 6–Origins and pedigrees of modern domestic soybean varieties from public institutions (Document part). *USDA Technical Bulletin* No. 1746. 68 p. Oct. See p. 32-59.

• ***Summary:*** For each variety, the following information is given in tabular form: Variety name, maturity group, pedigree, prior designation, year licensed or released, developer. The varieties, listed alphabetically, are: Acme (Canada), Ada, Adams, Adelphia, Alamo, Altona (Canada), Amcor, Amsoy, Amsoy 71, Anoka, Bay, Bedford, Beeson, Beeson 80, Bethel, Bicentennial (Canada), Bienville, Blackhawk, Bonus, Bossier, Bradley, Bragg, Braxton, BSR 101, BSR 201, BSR 301, BSR 302, Calland, Cartter, Celest, Centennial, Century, Century 84, Chamberlain, Chico, Chippewa, Chippewa 64, Clark, Clark 63, Clay, CN210, CN290, Cobb, Coles, Columbus, Comet (Canada), Corsoy, Corsoy 79, Crawford, Crest (Canada), Cumberland, Curtis, Custer, Cutler, Cutler 71, Dare, Dassel, Davis, Dawson, Delmar, DeSoto, Disoy, Dorman, Douglas, Dowling, Dunn, Duocrop, Dyer, Egyptian, Elf, Elgin, Emerald, Epps, Essex, Evans *, Fayette, Ford, Forrest, Foster, Franklin, Fremont, Gail, GaSoy 17, Gnome, Gnome 85, Gordon, Govan, Grande, Grant, Gregg, Hack, Harcor (Canada), Hardee, Hardin, Hardome (Canada), Hark, Harlon (Canada), Harly (Canada), Harosoy (Canada), Harosoy 63 (Illinois, USA), Harper, Harwood (Canada), Hawkeye, Hawkeye 63, Henry, Hill, Hobbit, Hodgson, Hodgson 78, Hood, Hood 75, Hoyt, Hutton, Jackson, James, Jeff, Johnston, Jupiter, Jupiter-R, Kahala, Kaikoo, Kailua, Kanrich, Keller, Kent, Kershaw, Kim, Kino, Kirby, Lakota, Lawrence, Lee, Lee 68, Lee 74, Leflore, Lindarin, Lindarin 63, Logan, Mack, Madison, Magna, Maple Amber (Canada), Maple Arrow (Canada), Maple Donovan (Canada), Maple Isle (Canada), Maple Presto (Canada), Maple Ridge (Canada), Marion, McCall, Mead, Merit (Canada), Miami, Miles, Mokapu Summer, Monroe, Morgan, Morsoy (Canada), Narow, Nathan, Nebsoy, Norchief, Norman, OAC Aries (Canada), OAC Libra (Canada), OAC Pisces (Canada), OAC Scorpio (Canada), Oakland, Oksoy, Ozzie, Pella, Pella 86, Perry, Pershing, Pickett, Pickett 71, Pixie, Platte, Pomona, Portage (Canada), Preston, Prize, Protana, Provar, Pyramid, Rampage, Ransom, Regal, Renville, Rillito, Ripley, Ross, Scott, Semmes, Shelby, Sherman, Shore, Sibley, Simpson, Sloan, Sohoma, Sparks, Sprite, Stafford, Steele, Swift, TN 4-86, TN 5-85, Toano, Tracy, Tracy-M, Traverse, Union, Vance, Vansoy (Canada), Verde, Vickery, Vinton, Vinton 81, Wabash, Ware, Wayne, Weber, Weber 84, Wells, Wells II, Wilkin, Will, Williams, Williams 79, Williams 82, Winchester, Wirth, Woodworth, Wright, Wye, York, Young, Zane.

* Concerning Evans: Maturity Group: 0. Pedigree: Merit x Harosoy. Prior designation: M61.96. Year licensed or released: 1974. Developer: Minnesota AES and USDA. Address: 1-2. Urbana, Illinois; 3-4. Stoneville, Mississippi.

1858. **Product Name:** [Tofu].
**Foreign Name:** Tofu.
**Manufacturer's Name:** Nutrisoya, Inc.
**Manufacturer's Address:** 4050 Pinard, St.-Hyacinthe, QUE, J2S 8K4, Canada. Phone: 514-796-4261.
**Date of Introduction:** 1988. October.
**New Product–Documentation:** Talk with Giles Goulet of Nutrisoya. 1990. Oct. 19. This company started making soyfoods in Oct. 1988, when they introduced tofu.

Update: 1995 May. Giles Goulet left in Sept. 1994 and no longer owns shares in the company. They now make three types of tofu: Herbs & Spices, Pimento & Onion, and Natural.

Note 1. This is the earliest known commercial soy product made or sold by Nutrisoya. It is also the earliest record seen (Oct. 2001) concerning Nutrisoya.

Note 2. As of Sept. 2001 this company's name is Nutrisoya Foods, Inc. The address has not changed. Phone: 450-796-4261. Contact: Nick Feldman, President. They make soymilk, tofu, and tofu products.

1859. Oilseeds Division, Grain Marketing Bureau, Grains and Oilseeds Branch, Agriculture Canada. 1988. Oilseed sector profile. Ottawa, Ontario, Canada. 65 p. Oct. 28 cm. [3 ref]

• ***Summary:*** Contents: Foreword. Introduction. The production subsector. The processing subsector: Background, industry structure, industry performance. The marketing subsector: Oilseeds marketing, processed oilseed products marketing, hedging. The marketing environment: Domestic, international markets. A look into the future. Appendix A: The role of the federal government in the Canadian oilseed industry. Appendix B: Oilseed industry directory, industry associations, oilseed processing companies, oilseed trading companies & coops, research / educational institutions, government, others. Appendix C: Tables. Address: 930 Carling Ave., Ottawa, ONT K1A 0C5, Canada. Phone: (613) 995-8374.

1860. *Soybean Digest.*1988. Soviets need U.S. beans. Oct. p. 21N.

• ***Summary:*** "... said Victor Lishchenko of the Inst. of U.S. and Canadian Studies in Moscow, 'Cooperation between the U.S. and Gosagroprom (the Soviet ministry of agriculture) is very important to us economically.'" The USSR is expected to double its soymeal imports from the U.S. from 1.2 million tonnes to 2.4 million in the upcoming year.

1861. Roller, Ron. 1988. Justice Department lawsuit against Eden Foods (Interview). *SoyaScan Notes.* Nov. 17. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The FDA filed the original charges then (since they do not prosecute cases), they turned the case over to the Justice Department, which in May 1988 filed 32 counts of criminal charges against Eden Foods. The problem relates to two things: (1) The original pamphlet which claimed that Edensoy is good for babies. The FDA case is that the product was promoted as an infant formula, in violation of the Infant Formula Act. An infant formula may be promoted only as a sole source of nutrition for infants. It is not a dual use product. Eden did a voluntary recall at a cost of about $45,000. (2) After the FDA told Edensoy to stop distributing the pamphlet, Eden Foods subsequently, probably accidentally, sent out (sold) some 20-50 more. That apparent willful flaunting of authority was what made the FDA pursue the case vigorously. They only prosecute 5-7 cases a year. The original counts were worth over $1 million in fines. The prosecutor is the same person who did the Gerber case. It is serious. Eden's attorneys advised that they plead to lesser charges and try for a plea bargain. Ten counts are worth $100,000 and about 22 are worth $1,000 each. Now it looks like the charge may be $150,000. Also Mike Potter is being charged personally, and faces potential but unlikely jail time.

There is only one known case where an infant was adversely affected by Edensoy. This infant lived in Toronto, Canada, and its physician said the child has completely recovered. There was no permanent damage. Address: Eden Foods, Clinton, Michigan.

1862. Archer Daniels Midland Co. 1988. First quarter report to shareholders. Box 1470, Decatur, IL 62525. 16 p.
• ***Summary:*** President Randall's Report–stated that the greatest concern of Americans in the 1990s will be the environment. 1. ADM now has in operation eleven large fluid bed boilers for cogeneration of power and process steam. 2. Worldwide technology has been licensed for using a special grade of starch to render disposable plastics degradable. 3. Ethanol is a third contribution to clean environment. Ethanol fuels have a high oxygen content, a major factor in reducing carbon monoxide poisoning of the atmosphere.

"There is a tremendous demand all over the world for soy protein products to replace subsidized milk powder. Our soy protein concentrate plant is completed and is now operational. We will double its size in early 1989 and are making plans to double it again before 1990, in response to the new demand.

"We are also doubling the size of our edible soy protein isolate plant, with plans for further increases in 1989 and beyond. We are constructing a plant for industrial isolates for the paper industry, to be sold in conjunction with our corn starches.

ADM now produces soybean flour, grits, TVP, concentrate and isolate, the most complete line of edible soy products of any producer.

Chairman Andreas' Report–The U.S. Government has more control over what the farmers plan and the prices they receive today than they have ever had in history.

Government imposed embargoes cause massive restructuring of world trade and processing. Examples: Immediately after the 1980 embargo, the following fundamental permanent adjustments in world trade occurred: 1. The EEC, in emergency meetings, alarmed that the U.S. would cut off exports for political reasons, resolved to become self-sufficient, particularly in oilseeds, with the result that they increased production of wheat and have become a large surplus producer of wheat. 2. Japan, equally alarmed, immediately made $1,000 million available to Brazil to expand soybean production 300%. 3. The Soviet Union took its order book to Brazil, Canada, Argentina, Australia, and the EEC, cutting the U.S. from a 75% supplier to a 25% supplier. 4. Canada and Australia responded with 20% increases in production. Address: Decatur, Illinois.

1863. DeBoer, H.; Hacker, R.R.; Leeson, S.; Wagemans, V. 1988. Fish protein concentrate (Conmar 80) or refined soy flour as substitutes for skim milk powder in calf milk replacers. *Canadian J. of Animal Science* 68(4):1155-61. Dec. [22 ref]
Address: Dep. of Animal and Poultry Science, Univ. of Guelph, Guelph, Ontario, Canada N1G 2W1.

1864. **Product Name:** Frozya Frozen Dessert Product (With Sodium Caseinate) [French Vanilla, Chocolate, or Mocha Fudge Almond].
**Manufacturer's Name:** Frozya Industries, Inc.
**Manufacturer's Address:** 1803 Douglas St. #301, Victoria, BC, V8T 5C3, Canada. Phone: 604-386-7743.
**Date of Introduction:** 1988. December.
**Ingredients:** Basic ingredients in all 3 are: Water, sugar, corn syrup solids, malto-dextrin, canola oil, isolated soy protein, sodium caseinate, liquid egg yolk, mono- and diglycerides, guar gum, locust bean gum, polysorbate 80, carrageenan, salt, malt extract, citric acid, natural and artificial flavors.
**Wt/Vol., Packaging, Price:** Gallon and 4 liter tubs.
**How Stored:** Frozen.
**Nutrition:** 99.9% lactose free.
**New Product–Documentation:** Soya Newsletter. 1988. Sept/Dec. p. 11. Contact Herm Hamhuis or Deedrie Ballard. Note: Ballard (with her husband Don) were owners of Tripple Products Inc. (in Victoria, BC), which launched Tripple Delight, a soy ice cream, in about Dec. 1986.

1865. *Soy Ink Journal (St. Louis, Missouri, and Reston, Virginia).*1988. Publishers report good results with soy ink. 1(1):1-4. Undated.
• ***Summary:*** This colorful 4-page undated newspaper, printed using soy color and black inks, was published by the American Soybean Association (ASA) in St. Louis, Missouri, and the USDA in conjunction with the American Newspaper Publishers Association (ANPA) in Reston, Virginia, to promote the use of soy ink. The first issue contains articles such as the following: ANPA gets the ball rolling: Research keys soy inks success. Why should papers switch to soy ink? Bulk delivery of Soy-ANPA-INK available from major ink companies. The environmental advantage: Soy oil inks utilize biodegradable ingredients, making disposal easier. Future Mizzou grads learn benefits of soy ink. Canada on the soy ink fast track. Farm press pushes for expanded use of soybean oil ink in the United States. Vegetable oil report: They are not all alike. Soy oil supply should remain steady in upcoming years.

Talk with Stu Ellis of the American Soybean Association. 1992. Sept. 11. He is ASA associate director of domestic marketing and has been actively involved with the soy ink campaign since early 1989 when he joined ASA. The first issue (called Vol. 1, No. 1) was published in late 1988, the second (called Vol. 2, No. 1) was published in June 1989 and the third (called Vol. 3, No. 1) in June 1990. About 15,000 copies of the last issue were printed and distributed free of charge. Only these three issues were published. These publications were designed to tell the newspaper industry about soy ink. Since 1990 the focus of soy ink marketing has switched to commercial printers and magazines using news releases and brochures. To date, 75 ink manufacturers and 1,600 newspapers and commercial printers have licensed ASA's SoySeal.

1866. Zee, John A.; Boudreau, A.; Bourgeois, M.; Breton, R. 1988. Chemical composition and nutritional quality of faba bean (Vicia faba L. Minor) based tofu. *J. of Food Science* 53(6):1772-74, 1781. Nov/Dec. [36 ref]
• ***Summary:*** Tofu was made from both soybeans and faba beans (coagulated with magnesium chloride), then its chemical composition and antinutritional factors were analyzed. On a dry basis, both types of tofu had higher protein contents (55.7% and 82.0% for soy and faba bean tofu respectively). On a dry basis, faba bean tofu contained only 1.5% lipids compared with 34.4% for soybean tofu. Antinutritional and flatulence factors were much lower in faba bean tofu. Both types of tofu are comparable in terms of digestibility and amino acid availability.

Aside from favism, the faba bean contains fewer antinutritional and flatulence factors than soybeans, about one-fifth as much trypsin inhibitor, and considerably less raffinose and stachyose–which cause flatulence. Address: 1,3-4. Département de Nutrition Humaine et de Consommation; 2. Dep. de Sciences et Technologie des Aliments. All: Univ. Laval, Quebec, G1K 7P4 Canada.

1867. *FAO Yearbook–Production.*1988-2004. Serial/periodical. Rome, Italy: Food and Agricultural Organization of the United Nations. Yearly. ca. 350 p.

1868. Khorasani, G.R.; Sauer, W.C.; Ozimek, L.; Kennelly, J.J. 1988. The utilization of soybean protein concentrate by the preruminant calf. In: University of Alberta 67th Annual Feeders Day Report. See p. 19. *

1869. **Product Name:** [Soyolait (Natural Soy Drink)].
**Foreign Name:** Soyolait.
**Manufacturer's Name:** Les Aliments Tarasoy Ltée (Tarasoy Foods Ltd.).
**Manufacturer's Address:** 3455 Local D rue Isabelle, Brossard, QUE J4Y 2R2, Canada. Phone: 514-659-6586.
**Date of Introduction:** 1988.
**Wt/Vol., Packaging, Price:** 1 liter Pure-Pak carton.
**How Stored:** Refrigerated, 21 day shelf life at 3ºC.
**New Product–Documentation:** Talk with Helen Wan, sales manager. 1995. May 26. In 1988 they introduced *Soyolait*, a 1-liter soya drink that is presently the company's best-selling product and also the best-selling fresh soymilk in Quebec. It is sold fresh in Pure-Pak cartons, and has a remarkable 21-day shelf life at 3ºC. The product is made and packaged entirely at their plant. It is sweetened with barley malt extract and sold only in Quebec, and mostly at natural food stores. It is consumed by Caucasian-Canadians rather than by Chinese-Canadians (who prefer a sugar-sweetened product). Soyolait is less expensive than Edensoy, since the packaging is less expensive.

1870. **Product Name:** Tempeh with Sea Veggies.
**Manufacturer's Name:** Noble Bean.
**Manufacturer's Address:** R.R. 1, McDonalds Corners (near Elphin), Ontario K0G 1M0, Canada. Phone: 613-278-2305.
**Date of Introduction:** 1988.
**How Stored:** Frozen.
**New Product–Documentation:** Letter (fax) from Allan Brown. 1998. Jan. 21. This tempeh was first sold in 1988.

1871. **Product Name:** [Tofu Teriyaki].
**Foreign Name:** Tofu Teriyaki.
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada. Phone: 604-254-0701.
**Date of Introduction:** 1988.
**Ingredients:** Tofu (water, soybeans, calcium sulphate, magnesium chloride, vegetable oil). Sauce: Water, soy sauce, sugar, cornstarch, ginger, garlic, sesame oil, spices.

**Wt/Vol., Packaging, Price:** 10 oz (300 gm).
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 5.5 by 3.5 inches. With color photo in middle of tofu teriyaki on pasta. "Pasteurized. No preservative." Product name also written in Chinese. Form filled out by Peter Joe. 1988. May 20. Gives date.

1872. **Product Name:** [Tofu Sweet N' Sour].
**Foreign Name:** Tofu Aigre-Doux.
**Manufacturer's Name:** Sunrise Market Ltd.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada. Phone: 604-254-0701.
**Date of Introduction:** 1988.
**Ingredients:** Tofu (water, soybeans, calcium sulphate, magnesium chloride, vegetable oil). Sauce: Water, sugar, vinegar, tomato paste, soy sauce, cornstarch (modified), salt, citric acid.
**Wt/Vol., Packaging, Price:** 10 oz (300 gm).
**How Stored:** Refrigerated.
**New Product–Documentation:** Label. 5.5 by 3.5 inches. With color photo in middle. "Pasteurized. No preservative." Product name also written in Chinese. Form filled out by Peter Joe. 1988. May 20. Gives date.

1873. Grant, Tina. 1988. International directory of company histories. Vol. 84. Chicago, Illinois: St. James Press. 719 p. See p. 332. *
• ***Summary:*** Dr. Jackson drank a coffee substitute made from roasted wholemeal grains named "Kofy-Sub," which he drank hot or iced. He also began an exercise regimen, sleeping with the windows open, even in sub-zero temperatures, and taking cold, invigorating baths. Even though he was middle aged, Dr. Jackson was successful in revitalizing his health.

1874. Upfold, R.A.; Olechowski, H.T. 1988. Soybean production. *Ontario Ministry of Agriculture and Food, Publication* No. 173. 17 p. 28 cm. [9 ref]
• ***Summary:*** Contents: Introduction. Climate and soil. Growth and development. Chosing a variety. Tillage and seedbed preparation. Inoculation. Planting. Reduced stands. Fertility. Weed control. Diseases. Insects and mites. Other problems. Harvesting and storage. Feeding soybeans. Marketing. References. Address: 1. Crop Science Dep., Univ. of Guelph; 2. Plant Industry, OMAF, Ontario, Canada.

1875. Ontario Soya-Bean Growers' Marketing Board. 1988? Marketing soybeans. Chatham, Ontario, Canada. 18 p. Undated. 28 cm.
• ***Summary:*** Contents: Marketing Ontario soybeans. Contracts. Pricing soybeans. Pricing soybeans in the cash market. Basis. Export costings. Import costing formats. Using the futures market. Options. Selling Ontario soybeans. Glossary of terms. Address: Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

1876. Theses on soybeans and soyfoods: Dissertation Abstracts (Database search report). 1989. 234 p. Jan. 20. 28 cm. Unpublished manuscript. [1106 ref]
• ***Summary:*** The Dissertation Abstracts database contains virtually every American PhD dissertation accepted at an accredited institution since 1861. A search yielded 1,106 theses on soybeans and soyfoods not including records with the terms pathogen*, Disease*, weeds, or insect* in the title or abstract. * = truncated term.

It contained the following number of theses on soyfoods: Soymilk 9-14, tofu 6, tempeh 6, miso 4, soy sauce 3, and natto 2.

The most valuable records for us are in the subject categories Food Science & Technology; Health Sciences, Nutrition; and Economics, Agricultural. Other subject categories include: Agriculture (Agronomy, Animal Culture & Nutrition, General, Plant Culture, Plant Physiology); Biochemistry; Botany; Chemistry (Agricultural and Biological, Analytical); Engineering, Chemical; Entomology.

A count of the records in which we were interested by state where the thesis was written shows the following: Illinois 128, Iowa 68, Indiana 37, New York 30, Missouri 28, Michigan 26, Minnesota 25, and Ohio 17.

1877. *Plenty Canada News (Lanark, Ontario, Canada).*1989. Volunteers receive recognition. Winter 1988/89. p. 1.
• ***Summary:*** "Five Plenty supporters are soon to receive a certificate acknowledging their 'significant contribution' to Plenty's work. These certificates, to be signed by the President of CIDA, are being given to many Canadians across the country in celebration of 20 years of voluntary sector and Canadian government partnership in international development.

"The five Plenty supporters are: Allan Brown, Jim Creighton, Percy Henkelman, Kathleen Purdy, Valerie Unwin."

"Allan Brown, from McDonald's Corners, Ontario, a founding member and the first Executive Director of Plenty Canada who has continued his support of the organization ever since."

Note: Allan Brown, and his wife Susan, founders of Noble Bean in Sept. 1979, were pioneer tempeh makers in Canada. Address: R.R. #3, Lanark, Ontario K0G 1K0, Canada. Phone: (613) 278-2215.

1878. Adams, James Lee. 1989. The soy agenda... From your ASA president. *Soybean Update.* Feb. 20. p. 3.
• ***Summary:*** The U.S. soybean market is under attack by foreigners. "Three fourths of U.S. consumers who buy

soyoil don't realize it... The average [U.S.] farmer invests just three-fourths of one cent per bushel [of soybeans]. Canadian rapeseed growers are investing double! And the Malaysian palm producers are investing 10 times a much as you!"

1879. Okonek, Douglas V.; Sullivan, T.J.; Nebesh, O.; Hastert, R.C. 1989. Hydrogenation of canola and soybean oils: A comparison. In: A.J. Pascale, ed. 1989. World Soybean Research Conference IV. Buenos Aires: Continuing Committee. xxviii + 2152 p. See p. 1731-36. [5 ref]

• ***Summary:*** "The early 1986 decision by the Food and Drug Administration to allow low erucic acid rapeseed (LEAR) oil to be used in edible oil products sparked considerable interest in the properties and performance of canola, the copyrighted Canadian name for LEAR oil. One major U.S. edible oil producer formulated a premium salad oil product as 100% canola...

"Canola contains trace amounts of sulfur from the glucosinolates in the oil while soybean contains almost no detectable sulfur. Sulfur is a well known nickel catalyst poison...

"Conclusions: 1. Canola oil hydrogenation requires more catalyst than soybean oil to achieve the same IV [iodine value] in the same reaction time. This is attributed primarily to the sulfur content of the canola oil. 2. The rate of *trans*-isomerization per unit IV reduction is greater for canola oil. Again, this is attributed to the presence of sulfur in the canola oil." Address: Engelhard Corp., P.O. Box 22126, Cleveland, Ohio 44122.

1880. *Ontario Soybean Growers' Marketing Board Newsletter.*1989. Forty years of progress. Feb. p. 1.

• ***Summary:*** The Ontario Soybean Growers' Marketing Board was established in 1949 under the Farm Products Marketing Act. It is celebrating its 40th anniversary in 1989. The adoption of a new logo with the spelling of "soybean" is one of the most visible events marking the anniversary. In 1949, 11 directors represented some 6,000 growers in 6 districts; and 90,000 acres of soybeans were grown. In 1989, 15 directors represent over 24,000 growers in 8 districts across the province.

In 1988, 1,280,000 acres of soybeans were grown and soybeans ranked number one in farm cash receipts for Ontario crops, according to preliminary estimates from O.M.A.F. "Worth over $351,000,000 in 1988 the soybean industry continues to expand and represents a valuable part of Ontario's agricultural economy." Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

1881. *Ontario Soybean Growers' Marketing Board Newsletter.*1989—. Serial/periodical. Chatham, ONT, Canada. OSGMB: Vol. 1, No. 1. Feb. 1989.

• ***Summary:*** This monthly newsletter began as a 4-page publication, typewritten on beige non-glossy paper, with the two sheets of paper stapled together. The banner at the top of page 1 included the logo, date, address, and phone number.

By Feb. 1990 the four pages were printed on one large, folded sheet of beige paper with a larger typeface. The logo no longer appeared at the top of page 1.

By June 1992 the newsletter was typeset, with 3 columns per page. The logo again appeared at the top of page 1.

By June 1993 the monthly newsletter had changed and improved dramatically. It was now 8 pages long, with saddle stitch binding, a green border containing a soybean motif around each page, printed in two colors (green and black) on glossy white paper. There were 3 columns on each page and many photographs. This format continued until December 2003, when it was discontinued in printed form. It migrated to the Internet as a 1 page report of much lower quality. Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

1882. Ontario Soybean Growers' Marketing Board. 1989. 40 years of progress: Fortieth anniversary, 1949-1999. Chatham, Ontario, Canada: OSGMB. 49 p. 22 x 28 cm.

• ***Summary:*** Contents: A message from the Ontario Minister of Agriculture and Food (Jack Riddell). Chairman's message (Ted McGrail). History of soybeans in Ontario (p. 3). Year by year: 1948-1989–One page is devoted to each year. The 3-element / column format is the same for most years and pages, except when there is a photo of the new staff person or a special photo is added: (a) A portrait photo of the chairman for that year. (b) Brief statement of important developments that year (mostly soybean price, production, acreage, yield, support price or deficiency payments). (c) Names of the director(s) from each of the six districts–1. Elgin. 2. Essex. 3. Pelee Island. 4. Kent. 5. Lambton. 6. Middlesex. Page 47 briefly summarizes 40 years of progress.

Four graphs (p. 48-49) show changes related to Ontario soybeans from 1949 to 1989: (1) Soybean acreage grew from 104,000 acres to 1,290,000 acres; the most rapid growth occurred after 1976. Annual average yields and 5-year average yields have increased steadily–the 5-year average from about 18 bushels/acre in 1949 to about 36 bushels in 1989. Soybean production grew from about 3 million bushels in 1949 to a peak of about 45 million bushels in 1987. The soybean crop value (farm cash receipts) grew from almost nothing in 1949 to over $351 million in 1988; rapid growth began after 1971 and 1976.

Chronology of some important events extracted mainly from individual years.

"1949–The Ontario Soya-Bean Growers' Marketing Board was established under the Farm Products Marketing

Act. Under the provisions of the new regulations eleven soybean growers were elected as directors to the board. Together they represented some 6,000 soybean producers in six Ontario districts. The first office of the board was located in the office of the Agricultural Representative in Essex, and Angus McKinney was the first secretary. K.A. Standing acted as assistant on a part-time basis. Board operations were financed during the 1949-50 crop year by one half cent per bushel license fee [like the later U.S. checkoff fee].

"1950–The license fee was increased [doubled] from one-half cent to one cent per bushel, the level at which it remained until 1959.

"1951–The first annual convention of soybean growers was held Feb. 15-16, 1951 at the Community Hall, Chatham [County of Kent]. Imports from the U.S. were totalling about 5 million bushels annually.

1952–K.A. Standing became general manager (with portrait photo). The board established its office in Chatham sharing facilities and staff of one secretary with the Ontario Seed Corn Marketing Board on Market Street. The first task was to set up a complete grower records system.

"1953–Expansion of office requirements resulted in a move to new quarters on Fourth Street in Chatham.

1954–The OSGMB organized the first export of Canadian soybeans. The shipment was made from Port Stanley [Ontario] to interests in the United Kingdom. Initiated to generate competition in the domestic market, exports were to continue in every succeeding year. Some 1,492,000 bushels of soybeans were exported during the 1954-55 crop year.

1956–The number of elected directors increased to 14 from 11.

1957–The average price of soybeans paid to growers dropped to $1.95 per bushel–the lowest since World War II. The board pressed for legislation to stabilize returns to growers.

"1958–The board was successful in having soybeans brought under the Agricultural Stabilization Act. The crop was supported at $2.10 per bushel. The average price paid to growers was $1.90, resulting in a deficiency payment of 19.6 cents per bushel for a total of $1,200,000 paid to growers. The office was moved from Fourth Street to Wellington Street West in Chatham. Otis McGregor became assistant secretary-manager (with portrait photo).

Note. Letter (e-mail) from Kim Cooper formerly of OSGMB. 2010. Feb. 18. The growers always had to pay a premium to take part in income stabilization programs. So it was not simply a government subsidy. At first, the premiums had to be paid up front, but after a few years, the premiums were deducted from the payout, if there was any payout.

1960–L.R. Addeman became information officer for both the soybean and wheat boards.

1963–The ban on coloured margarine is lifted in Ontario.

"1964–Increased emphasis was put on [soybean] research when federal and provincial programs were brought under a coordinated plan.

"1965–Domestic crushings reached a 16-year high at 20.8 million bushels, as did soybean imports at 16.5 million. There was no price support in 1965 and succeeding crops, the last having been applied to the 1964 crop at $2.15 per bushel."

1970–Canadian soybean production first tops 10 million bushels.

1973–The first shipment of Ontario soybeans (Harsoy variety) was made to Japan. The Ontario Soybean Symposium was held at Ridgetown College of Agricultural Technology, sponsored by the Board, the Ministry of Agriculture, and Food and Agriculture Canada. K.A. Standing became general manager of both the soybean and wheat boards and Otis McGregor was appointed marketing manager of both boards.

1974–D. Sanderson became secretary to the Ontario soybean and wheat boards.

1975–The Soybean Board established its own separate office in a rented building on Kell Drive in Chatham. Otis McGregor became secretary manager of the Soybean Board.

1977–The metric system started to be used in agriculture in Canada; metric ton (tonne) officially replaced bushel. "An Advance Payment Program was established for soybeans under the federal Advance Payments for Crops Act. The program provided interest free loans to producers who stored their soybean crop at harvest for future sale." A record high yield average of 39 bushels per acre was set. Mario Baletto became market information coordinator.

"1979–The Board initiated a program to promote soybeans as a food product and hired home economist Linda Lantz to manage the program. Soybeans were the featured crop at the Royal Agricultural Winter Fair.

"1980–Soybeans began trading duty free between Canada and the United States following the elimination of a 60 cent per bushel tariff, via the General Agreement on Tariffs and Trade" (GATT). Fred Brandenburg became assistant secretary manager.

"1982–The Board participated in a soybean export market development mission to Japan, Hong Kong, Malaysia, Singapore, and Korea; it was organized by the Ontario Ministry of Agriculture and Food. Continued low prices trigger stabilization payments of 38 cents per bushel federally and 37 cents per bushel provincially."

1983–Two new districts were formed, bringing the total to 8. District 7 ran east to the Quebec border reflecting the advance of soybean production to the north and east from its traditional area.

1984–A new office for the Board was erected at 180 Riverside Drive in Chatham. "A two-day conference–the

Ontario Soybean Symposium–and an incoming mission of soybean buyers from the Far East [East Asia] and Europe were sponsored jointly" by OSGMB and OMAF. "Prices dropped again making a provincial stabilization payment of 36 cents per bushel necessary." Note: Stabilization support prices are based on an average of market prices for the past five years.

1985–Fred Brandenburg became secretary manager of the board and John Davidse became executive assistant to the board. "Ontario became self-sufficient in soybean production for the first time as the 37,000,000 bushel crop exceeded the 33,165,000 bushel crush. Low prices continued as did stabilization payments–42 cents per bushel from the federal program and 39 cents from the provincial program."

1986–"Ontario's single biggest soybean export sale of 50,000 tonnes was made to the USSR." Low soybean prices paid to producers continued. In addition to federal and provincial stabilization payments, "the Special Canadian Grains Program paid soybean growers on the basis of 18 cents per bushel."

1987–Tino Breuer became marketing specialist. Districts were again redistributed to reflect the average soybean production in each.

1989–The Board celebrates its 40th birthday with a new logo and a change in the spelling of its name from "Soya-Bean" to "Soybean." 15 directors now represent 24,000 growers in 8 districts across the province. 1,280,000 acres of soybeans were grown in 1988–more than 14 times as many as in 1948. Soybeans are Ontario's #1 cash crop, worth over $350 million in farm cash receipts in 1988. Address: P.O. Box 1199, Chatham, Ontario, Canada N7M 5L8. Phone: 519-352-7730.

1883. Shanmugasundaram, S. 1989. Directory of mungbean and soybean researchers. AVRDC, P.O. Box 205, Shanhua, Tainan, Taiwan. vi + 134 p. Over 750 listings. Feb. 26 cm. [Eng]

• ***Summary:*** A directory of professionals working on these two leguminous crops. Contents: Preface. Abbreviations. Explanatory note (describes a typical listing). Directory: Mungbean researchers, soybean researchers, mungbean and soybean researchers. Indexes (by country of nationality): Mungbean index. Soybean index. Mungbean and soybean index.

Printing of this publication was supported, in part, by the Tropical Vegetable Information Service, a project funded by the International Development Research Centre (IDRC) of Canada. Address: Tainan, Taiwan.

1884. Shanmugasundaram, S. 1989. Global cooperation for the improvement of soybean research and development. In: A.J. Pascale, ed. 1989. World Soybean Research Conference IV. Buenos Aires: Continuing Committee. xxviii + 2152 p. See p. 1939-47. [17 ref]

• ***Summary:*** "Soybeans became a global crop after its introduction and adoption as an industrial crop in the U.S.A. The collaboration between China and the U.S.A. on soybean germplasm collection marked the beginning of global cooperation for soybean research and development. A number of international agricultural research centers such as AVRDC, UN/ESCAP CGPRT Centre, IBPGR, IITA, INTSOY, and IRRI presently conduct worldwide research and development activities on soybean... Their problem-oriented research activities with an interdisciplinary approach should be continued to help improve soybean production, processing, marketing and utilization particularly in the densely populated, developing countries in Asia and Africa. At least 400 to 600 million children in the world's 60 poorest countries suffer from chronic malnutrition and more than one fourth of the world's population suffer from hunger during some part of each year. Soybeans with 40% protein and 20% oil could help alleviate protein and caloric malnutrition. FAO/UNDP, USAID, ACIAR, IDRC, Winrock International and World Bank, among others, are the major funding agencies which encourage and support the research and development activities of soybean. The global cooperation includes regional networking, germplasm exchange, specific research activities, manpower training, workshops, conferences and information exchange. A consolidation of such support for integrating various forces is being proposed to further promote the research and development effort on soybeans...

"INTSOY initiated the International Soybean Variety Experiment (ISVEX trials). From 1973 to 1985, more than 2,000 ISVEX trials were distributed to 132 countries around the world. INTSOY also received a number of breeding lines from cooperators in 34 countries and included them in a preliminary screening program called "The Soybean International Experimental Variety Evaluation (SIEVE) and Soybean Preliminary Observation Trial (SPOT). India, Sri Lanka, Peru, Egypt, Turkey, Ecuador, Costa Rica, Nepal and Guatemala are among the more than 20 countries now commercially growing soybean varieties introduced through INTSOY trials...

"Institutions and agencies involved in soybean: Category I. Production and utilization research: Asian Vegetable Research and Development Center (AVRDC), International Board for Plant Genetic Resources (IBPGR), International Food Policy Research Institute (IFPRI), International Institute of Tropical Agriculture (IITA), International Soybean Program (INTSOY), International Rice Research Institute (IRRI), United Nations Economic Social Commission for Asia and the Pacific's Coarse Grains, Pulses, Root and Tuber Crops Centre (UN ESCAP/

CGPRT Centre), European Cooperative Research Network on Soybean (ECNS).

"Category II. Marketing research: American Soybean Associations in various countries, ESCAP CGPRT Centre, Food and Agriculture Organization of the United Nations (FAO), IFPRI, Soyfoods Center.

"Category III. Funding agencies: United Nations Development Programme (UNDP), Food and Agriculture Organization of the United Nations (FAO), United States Agency for International Development (USAID), Australian Centre for International Agricultural Research (ACIAR), International Development Research Centre (IDRC), Canadian International Development Agency (CIDA), Winrock International, World Bank, Asian Development Bank, Japan International Cooperation Agency (JICA), Institut de Recherches Agronomiques Tropicales et des Cultures Vivrieres (IRAT), Agency for Technical Cooperation (GTZ).

"The AVRDC commenced its soybean research with the goal of developing stable, high yielding soybeans for the tropics and subtropics. Since 1973, AVRDC has accumulated more than 11,000 accessions of soybean. The Center has provided more than 31,000 breeding lines and varieties to 164 scientists in 56 countries. AVRDC Soybean Evaluation Trial Network (ASET) was initiated in 1980." Address: Asian Vegetable R&D Center, P.O. Box 205, Taipei 10099 Taiwan.

1885. Rowat, Steve. 1989. Process for production of a cultured tofu and product produced therefrom. *U.S. Patent* 4,816,266. March 28. 4 p. Application filed 19 June 1987. [6 ref]

• ***Summary:*** Tofu is mixed with a bacterial starter commonly used in making yogurt then blended/pureed (as with a VCM). The result is a smooth puree which, when incubated, yields a product with increased shelf life, and improved flavor, digestibility, and nutritional value. Yofu is a Canadian trade mark.

The author gives his address in correspondence as: Yofu Development, Box 93, Merrickville, ONT, K0G 1N0, Canada. Also granted as Canadian Patent 1,243,238. Address: 62 Renfrew Ave., Ottawa, ONT, K1S 1Z5, Canada. Phone: 613-269-4483.

1886. *Agri-Book Magazine (Exeter, ONT, Canada).*1989. Beans in Canada. 15(5):1-38.

• ***Summary:*** This entire issue is about soybeans in Canada, with emphasis on soybean production. Articles include: Reduced tillage tests management. Genes and genies. Bioherbicides target weeds. Weed control: What happened, why, and what's ahead. The American Seed Trade Association (ASTA) and the Free Trade Agreement. ASTA Conference. Quebec soybeans. What's new in pest control. Extruding soybean explained. Soybean pest perspective. Think ink! (soybean ink). Board Briefs (OSGMB; a photo shows Fred Brandenburg). Varietal variations.

1887. **Product Name:** Astronuts.
**Manufacturer's Name:** Grove Country Foods Canada Inc.
**Manufacturer's Address:** 2 Morgan St., Ridgetown, ONT, N0P 2C0, Canada. Phone: 519-674-0631.
**Date of Introduction:** 1989. March.
**Ingredients:** Milk chocolate (containing sugar, milk powder, cocoa butter, chocolate liquor, chocolate liquor, soya lecithin, and vanilla), roasted soya nuts, dextrin, confectioners shellac, glucose.
**Wt/Vol., Packaging, Price:** 80 gm paperboard box.
**How Stored:** Shelf stable.
**New Product–Documentation:** Label (sample). 1989. Received March 6 from manufacturer. 2.76 by 5/8 inches. Paperboard box. Orange, yellow, and brown. Illustration of astronaut floating upside down among celestial bodies in space. "Chocolate with an out of this world nutty crunch" (Also written in French). Address on box (different from cover letter) is Suite 313, 500 Danforth Ave., Toronto, ONT, M4K 1P6. Phone: 416-778-0007. Soyfoods Center product evaluation. Delicious. Letter. 1988. March. This new product, under development for 18 months, is made from whole roasted soybeans covered with milk chocolate. The company owners (partners) are Jim Patterson, Jim Boak, and Steve Posthumus. The company is looking for investors.

Talk with Fred Brandenburg of Ontario Soybean Grower's Marketing Board. 1991. Jan. 23. This company was in business for only 1-2 years, then they went bankrupt. They were a marketing company. They sold a line of soynuts (made by INARI Ltd.–the Stuttmans–in Michigan) that were roasted in the USA and chocolate-dipped in Ontario. James Patterson was president. Their main office was in Toronto; they had another office in Ridgetown, Ontario.

1888. Kohn, Florrie. 1989. Is canola coming? *Soybean Digest.* March. p. 8-10.

• ***Summary:*** An estimated 65,000 acres of canola are now planted in the U.S. Rapeseed now ranks as the world's third most widely grown oilseed. "Most rapeseed oils contain more than 40% erucic acid, which health experts link to heart disease. Canadian plant breeders created canola just over 20 years ago when they developed a rapeseed containing less than 5% erucic acid. Since then, they've trimmed the erucic acid in most canola to less than 2%...

"Four years ago FDA granted canola GRAS status. And in 1988, it stopped requiring food companies to identify canola oil as 'low erucic acid rapeseed oil' (LEAR) on food labels... Calgene, a California company that's invested heavily in developing canola varieties tailored to the U.S...

"ASA [American Soybean Assoc.] needs to think about bringing U.S. canola growers under its umbrella... Farmers see canola as an alternative to planting winter wheat...

"In addition to handling canola at its facility in Windsor, Canada [ADM Agri-Industries Ltd.], Archer Daniels Midland Co. (ADM) is switching its newly purchased processing plant in Velva, North Dakota, to canola...

"Several years ago, Procter & Gamble (P&G) switched its Puritan brand cooking oil from a soy/sunflower blend to 100% canola." A sidebar notes, "Canola oil in Canada accounts for more than 60% of the vegetable oil products, including over 80% of all salad oils. Canada grows more canola than any other country in the world...

"The European Community (EC) encourages its farmers to grow double zero (00) rapeseed, equivalent to canola."

1889. Smith, Preston. 1989. GATT talks stall in Montreal. *Soybean Digest.* March. p. 41-42.
• ***Summary:*** The European Community (EC) is not about to eliminate farm subsidies. "The EC and the U.S. have wide differences not only in agricultural policies, but also food philosophies. During and after World War II, Europeans faced real hunger; the U.S. escaped such peril. The EC food policy is built around security; ours is centered on providing the populace with cheap food. Our agricultural trade policy ideal is for more exports and more free trade. Increasingly, the EC trade policy is based on protectionism as the 12 nations become a 'United Europe' by 1992.

"Since 1979, farm program costs in the EC have doubled. In 1988, the EC spent $25 billion or 72% of its operating budget on farm programs. Worldwide, countries spend $150 billion a year subsidizing their farmers."

1890. *SoyaScan Notes.*1989. The best libraries and centers in Canada for doing research on soybeans and soyfoods (Overview). Compiled by William Shurtleff of Soyinfo Center.
• ***Summary:*** Best is the National Archives (National Library of Canada) at 395 Wellington St., Ottawa, ONT, K1A 0N4, Canada. They own 1 million volumes, 21,000 current periodicals, 65,000 dissertations/theses, 2 million government documents, 3,869 linear feet of manuscripts. It is especially good for historical research. All materials are computerized back to the 1920s.

Second best is the University of Guelph Library in Guelph, ONT, N1G 2W1, Canada.

Third best is the Agriculture Canada Library (Canadian Dept. of Agriculture Library), Sir John Carling Bldg., Room 245, Ottawa, ONT, K1A 0C5, Canada. Phone: 613-995-7851. Founded in 1910, this library owns 1 million volumes. See especially their Plant Research Centre Library.

Fourth best is probably the library of the Ontario Soybean Growers' Marketing Board, 175 Keil Drive South (Box 1199), Chatham, ONT, NM7 5L8. Phone: 519-352-7730.

Fifth best is probably the library of The Globe and Mail (which is billed as "Canada's National Newspaper") in Toronto. They have clipping files going back to the 1930s, by company, subject, and name. The librarian is usually willing to check these free of charge–unless it turns into a large project.

The Canada Institute for Scientific and Technical Information, Montreal Rd., Ottawa, ONT, K1A 0S2 (founded 1974) is also good; Information on Demand has their only "runner" in Canada there. The Metropolitan Toronto Library at 789 Yonge St., Toronto, ONT, M4W 2G8 is the largest library in Canada, but does not specialize in agriculture. The University of Toronto, which holds 4.8 million volumes, is the largest university library in Canada, but they too do not specialize in Agriculture. Note that all these libraries are in Ontario province. Start at Ottawa, which is about 100 miles west of Montreal. Then go to Toronto, which is about 300 miles southwest of Ottawa. Guelph is about 50 miles southwest of Toronto. Chatham is about 150 miles southwest of Guelph. For research on Henry Ford's work with soybeans, go 50 miles southwest to Dearborn and Detroit, Michigan.

1891. Thompson, Jay. 1989. Early work with tofu at Rochester Zen Center (Interview). *SoyaScan Notes.* April 11. Conducted by William Shurtleff of Soyfoods Center. [1 ref]
• ***Summary:*** "The Zen Center of Rochester was founded by Kapleau roshi in 1966. In about 1974 we started by importing tofu from Toronto. I would go to a Korean [Chinese?] shop named Yet Sing at #11 Baldwin Street. It looked like a normal residential home near a popular dress store named Morningstar. But when you descended to the basement it looked like a scene out of Dante's inferno. Everybody had hip boots on. There was ankle deep water, steam everywhere, and you could just see these laboring bodies through the mist. It seemed like there were 20-30 people in the basement working very hard. You had to clamber over huge bags of soybeans on pallets. No one spoke English. You used fingers with the front man to say how much you wanted. They only had one product as far as I could tell. I carried the tofu away in about eight number 10 cans filled with water. I would take the bus back across the Canadian border and many a time I was given a hard time by the customs officials. I hauled tofu down from Toronto once or twice a month for several years. When Zen students from Toronto came down for sesshin, we always asked them to bring tofu. One reason we wanted to start making our own tofu was that this trip was so difficult."

Jay first got in touch with William Shurtleff when he read a small letter Shurtleff had written to the *East West Journal* (15 June 1975, p. 3). In about August 1975 he wrote Shurtleff in Japan and got back a typed sheet describing how to make tofu on a home scale. In a second letter he requested instructions for making tofu on a larger scale.

"We made tofu in the kitchen a few times, realized we couldn't make enough at that scale, then used the instructions to build a small shop in the basement of Zen Center. We got a beam with a weight on it for pressing, installed a candy stove and a big pot. Greg Mello built the shop. Being in charge of the kitchen, and since this was a kitchen project, I was actively involved. Mello and Greg Weaver eventually took that small shop to a larger shop on North Goodman Street. The basement shop existed for several years. Once the commercial shop began, our kitchen bought tofu from them rather than making it ourselves. Mello left the Zen Center staff when the tofu shop went commercial. Andy Schecter and Norman Holland soon joined the shop.

"There were two favorite ways of serving tofu at the Zen Center: Tofu with Tahini Sauce, and Tofu Sticks, which were somewhat like fish sticks, make by baking breaded tofu, then serving it with tartare sauce." Address: Rochester, New York. Phone: 716-275-6779 Office.

1892. Thompson, Martha Gifford. 1989. Early work with tofu at Rochester Zen Center (Interview). *SoyaScan Notes.* April 11. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** The staff of 30-50 people in the Zen Center kitchen prepared strictly vegetarian meals. Kapleau roshi at that point had a dairy allergy, so very few dairy products were used in the meals. The diet was almost a vegan one. The Toronto Zen Center, was an affiliate group nearby in Canada. In Toronto, which has a large Asian population, were at least three tofu shops: one very small family-run Korean shop on Baldwin Street (which is no longer there), one on Avenue Road (perhaps Chinese run), and a third on Dundas Road. A member of the kitchen staff would make the 2½ hour trip to Toronto, go the shop on Baldwin Street (which had no name) to buy tofu. "The first room was stacked to the ceiling with soybeans. Down in the basement were many people slogging around making tofu. It was quite a scene, and nobody spoke any English. At that point we realized that we could make tofu ourselves. The trip to Toronto was always a hassle. You always got stopped at the border; they always thought you were smuggling something. Jay Thompson took the lead in setting up tofu making facilities. Kapleau roshi was very excited about and supportive of the project, in part because he had practiced for so long in Japan, and in part because he likes projects, right livelihood, and soyfoods. Once the shop was set up in the basement, we also made a lot of soymilk, yuba, and soy yogurt, and served spicy curds; we tried everything! The tofu shop of course never received any financial support from Zen Center." Address: Rochester, New York. Phone: 716-461-5388 Home.

1893. Rose, Richard. 1989. Re: Personal observations on soyfoods at Natural Foods Expo in Anaheim, California. Letter to William Shurtleff at Soyfoods Center, April 19. 1 p.

• ***Summary:*** "Nothing was especially noteworthy this year. Mandarin Soyfoods and Turtle Island had booths for the first time and were moderately well-received. Luke Lukoskie of Island Spring shared a booth with Kathryn Bennett and her Mexican food. White Wave had 2 booths and an expanded product line, including dressings, hot dogs, and cheese.

"Did you know that Yves tofu hot dogs are being served this year at Candlestick Park! Health Valley is the U.S. distributor of the hot dogs.

"Golden Soy Foods, Nasoya, Quong Hop and Sonoma Specialty Foods had no booth this year. Tomsun Foods shared a booth with their Los Angeles distributor. Jofu is back, but still needs improvement.

"Soymage sour cream was shown. It has no casein but does have soy protein isolates along with tofu. It was mediocre. However, Soya Kaas cream cheese with casein was absolutely awful, with poor flavor and mouthfeel. Cholesterol and organic was very big at the show. The Soyfoods Pavilion was indistinguishable, with only a banner up high at one end. Within the 'pavilion' was The Book Publishing Co. and Kashi (no soy), and about 1 or 2 other non-soy exhibitors.

"Gordon Bennett said the SAA board hired a part-time secretary to handle its affairs. She has an office next door to Golbitz. SAA will have more money this year and more programs. Ask the new secretary for a copy of the minutes." Address: President, Rose International, P.O. Box 2687, Petaluma, California 94953-2687. Phone: 707-778-7721.

1894. DeSilver, Drew. 1989. Eden Foods pleads guilty to infant formula violations: Paradise lost. *Vegetarian Times.* April. p. 9-10. [1 ref]

• ***Summary:*** "Eden Foods was fined $110,000 in January after pleading guilty to 11 counts of violating the federal Infant Formula Act, which sets nutritional standards for products sold as infant formula. Company president Michael J. Potter, who pleaded guilty to one charge of violating the act, was sentenced to 30 days in jail, two years' probation and a $25,000 fine. Both Eden's and Potter's penalties were the maximum allowable.

"The 12 misdemeanor charges, filed last year in the U.S. District Court in Detroit, involved a promotional pamphlet that Potter wrote in 1983 for Edensoy brand

soymilk. The Food and Drug Administration and the Justice Department charged that a pamphlet paragraph headed 'Good for Babies' said Edensoy was a 'quality substitute' for mother's milk, when in fact it lacks adequate amounts of several nutrients, including vitamins A, B-12, C, D and E, thiamin, pantothenic acid, calcium and iodine...

"The pamphlet attracted the attention of the FDA, which in October 19893 notified Eden that it was in violation of the Infant Formula Act. Eden immediately agreed to stop distributing the pamphlets and told a few of its large distributors to stop using them.

"There the matter stood until 1985, when a child suffering from malnutrition and failure to thrive was admitted to a Toronto hospital. The mother said she had seen a copy of the pamphlet at a natural food store and had been feeding the infant nothing but Edensoy. When the FDA learned about the infant (who eventually recovered with no ill effects), it ordered Eden to recall all the pamphlets. The FDA also called in the Justice Department, which filed charged against Eden and Potter in July 1988... Potter doesn't deny that he and Eden broke the law, but he says it was unintentional...

"In 1978, the Syntex Corp. promoted a product called Neosoy as an infant formula. Neosoy was deficient in chloride and was blamed for causing neurological damage to at least 80 children. The FDA wanted to prosecute Syntex, Gibbs said, but in 1984 the Justice Department decided not to. In another case, which occurred in 1985, the department filed 12 misdemeanor counts against Wyeth Laboratories for marketing a formula that lacked vitamin B-6. Wyeth pleaded guilty and received what was then the maximum fine, $1,000 per count. The total fine was only $12,000...

"Last year Eden made a $142,000 profit–slightly more than Eden's and Potter's combined fines."

1895. **Product Name:** Mandarin Soyfoods Tofu Patties, Tofu Patties with Cheese, or Garden Patties.
**Manufacturer's Name:** Mandarin Enterprises Ltd.
**Manufacturer's Address:** 11031 Bridgeport Rd. #107, Richmond, BC, V6X 3A2, Canada.
**Date of Introduction:** 1989. April.
**Ingredients:** Garden Patties: Tofu (organically grown soybeans, water, magnesium chloride [purified nigari]), soybean fibre [probably okara], soy grits, fresh onions, fresh carrots, fresh celery, fresh green peppers, whole wheat flour, sunflower oil, crushed tomatoes, sesame seeds, hydrolysed plant protein, seasoning, sea salt, spices.
**Wt/Vol., Packaging, Price:** 2 patties. 170 gm (6 oz). Pinched ends box.
**How Stored:** Refrigerated or frozen.
**Nutrition:** Garden Patties: Per 100 gm.: Calories 173, protein 22.5 gm, carbohydrates 17.6 gm, fat 2.2 gm, dietary fiber 3 gm, sodium 650 mg, potassium 300 mg.
**New Product–Documentation:** Leaflet. 1989. April. "New. Introducing... Mandarin patties. Three savory varieties. Prepared with tofu and garden-fresh vegetables, Mandarin Patties are ready to eat in just 5 minutes. So easy to prepare: bake, broil or fry, pop in a pita, bagel, burrito, baste or bar-b-que... Mandarin Enterprises has been making quality soyfoods in Canada since 1976." Shows color illustrations of a pattie in burger buns, and each of the three packages. Each package contains 2 patties and has the name in French along the bottom.

Soya Newsletter. 1989. May/June. p. 8.

Labels for all 3 products sent by Gerry Blanchard. 1992. Jan. 22. 7 by 5.5 inches. Paperboard sleeve. Illustration of a tofu burger with trimmings between buns, surrounded by a tomato, green pepper, celery stalk, and sliced onion. "Ready in 5 minutes. Prepared with tofu, savoury herbs & vegetables. Cholesterol free. Microwaveable. Heat and serve." Called "Pâtés Jardinières" in French.

Two leaflets for all 6 Mandarin patties also sent. One shows a huge illustration of a burger with the 6 packages below it. The other shows the six packages lined up in a typical produce case.

1896. *Ontario Soybean Growers' Marketing Board Newsletter.*1989. Soybean industry settles 1989 marketing agreement. April. p. 1.
• ***Summary:*** "Representatives of Ontario's soybean growers, dealers and processors signed a marketing agreement for the 1989 soybean crop year. The agreement establishes a minimum pricing formula for Ontario soybeans and the maximum fees charged to growers by dealers for handling and drying the soybean crop. Ontario soybean prices are based on international export markets." Address: Chatham, ONT, Canada. Phone: 519-352-7730.

1897. Plenty Canada. 1989. Re: Work with soyfoods. Come with me to Jamaica... Letter for fund raising sent to supporters, April. 3 p.
• ***Summary:*** Michael Shook, Development Education Officer, writes that Plenty Canada has a soy nutrition program in Jamaica, which includes soy foods demonstrations. Various Jamaican mothers "have been cooking with soy since Plenty's program began in this area three years ago." Plenty provides "soy processing kits." Address: R.R. 3, Lanark, ONT, K0G 1K0, Canada. Phone: 613-278-2215.

1898. Shurtleff, William; Aoyagi, Akiko. comps. 1989. Bibliography of soya in Canada: 633 references from 1855 to 1989. Lafayette, California: Soyfoods Center. 112 p. Subject/geographical index. Author/company index. Partially annotated. Printed April 22. 28 cm. [633 ref]

• ***Summary:*** This is the most comprehensive bibliography ever published on soybeans and soyfoods in Canada. One of more than 40 bibliographies on soybeans and soyfoods published by the Soyfoods Center, it lists all known documents (both published and unpublished) and commercial products in chronological order, making it a powerful tool for understanding the subject from an historical point of view from its earliest beginnings. 67% of all records (and most of the current records) contain a summary. An analysis of the composition of this bibliography (by language, document type, year, leading countries, states, and organizations) and details on how to use the bibliography are also included. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Phone: 415-283-2991.

1899. Cloud, Jon. 1989. Tofu shops in Ontario (Interview). *SoyaScan Notes.* May 3. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Soy City Foods is the only Caucasian-run tofu manufacturer of the 13 tofu companies in Ontario. The earliest tofu manufacturer he knows was Yet Sing on Baldwin Street, which probably started in the 1960s. They are still in business, but they don't talk much to Caucasians. Pyung Wa is on Baldwin Street.

Some years ago Stephen Yu of Victor Food Products wanted to expand his company. So he sold half of his interest in the company to members of the Rajneesh spiritual community. During the next few years the company didn't make money, so a guy named something like Bodhi-dharma moved in and put pressure on Stephen. Things began to go down hill. A number of his best workers left and started competing companies. T'ang, his foreman, left and started a company in Toronto (John doesn't know the name) that sells only to the Chinese market. Eventually Victor Foods declared bankruptcy. Address: Soy City Foods, Toronto, ONT, Canada.

1900. Lucking, Evelyn. 1989. Tetra Pak moves its headquarters and main library to Lausanne, Switzerland, from Lund, Sweden (Interview). *SoyaScan Notes.* May 31. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The new address is Tetra Pak Rausing S.A., Case Postale 181, 1009 Pully/Lausanne, Switzerland. The move took place in about 1987. There is no one person in the company specifically in charge of soymilk.

Note: According to David Wiesenfeld in Connecticut, the packs should be called "Tetra Brik Aseptic cartons" and never Tetra Packs, etc. By 1990 the company had started to use the term "Ever-Fresh" instead of "aseptic" for marketing. Address: Marketing Services Mgr., Tetra Pak Inc., 200 Van Dorf Rd., Aurora, ONT, L4G 3G8, Canada. Phone: 416-727-0171.

1901. *FDA Consumer.*1989. Not like mother made. 23(4):30-31. May.
• ***Summary:*** Describes the alleged illegal sale of Edensoy soymilk as "quality substitute" for mother's milk by Eden Foods of Michigan. "By 1985, the new soy drink accounted for one-third of Eden Foods' $5.5 million annual sales, and 35 percent of sales of all similar products in the nation's health food market, according to industry reports."

"Because of the illness in Canada–the sole report of injury from Edensoy–Eden Foods voluntarily issued a nationwide Class I recall..."

1902. Preisnitz, Heidi. 1989. Between the cracks: Making tempeh a family business–A series of profiles about people who are living the art they believe in. *Natural Life (Ontario, Canada)* Spring.
• ***Summary:*** A photo shows "The Noble Bean family: producers of tempeh and growers and distributors of Shiitake mushrooms at their home-based workplace near Elphin, Ontario." All are standing on an old pickup truck.

1903. Samman, Samir; Khosla, P.; Carroll, K.K. 1989. Metabolism of low density lipoprotein apolipoprotein B in rabbits fed semipurified diets containing casein or soy protein isolate. In: L.A. Johnson, ed. 1989. New Technologies for Value-Added Products from Protein and Co-Products: Symposium Proceedings. Ames, Iowa: Center for Crops Utilization Research. 312 p. See p. 69-72. Unnumbered. [10 ref]
• ***Summary:*** Contents: Introduction. Experiment 1: Turnover of LDL. Experiment 2: A cross-over study of LDL kinetics. Experiment 3: Receptor-dependent uptake of LDL. Discussion. Address: Dep. of Biochemistry, Univ. of Western Ontario, London, ONT, N6A 5C1, Canada.

1904. Central Soya Co., Inc. 1989. Central Soya to purchase Canadian processing plant (News release). Fort Wayne, Indiana. 2 p. June 27.
• ***Summary:*** "Central Soya Company, Inc. has agreed to purchase the Canadian Vegetable Oil Processing Operation (CVOP) of Canada Packers, Inc. in a move to further strengthen both its soybean processing and its new canola processing business. CVOP operates a plant in Hamilton, Ontario, that crushes soybeans and canola and manufactures lecithin. The purchase, subject to regulatory approvals, is expected to be completed in September...

"The Hamilton plant, a port facility with 130 employees, serves Eastern North America, and draws beans from Southwestern Ontario and canola from Western Canada...

"Canada Packers, the parent company of CVOP, operates several vegetable oil refineries, some of which are supplied with crude oil by CVOP...

"Headquartered in Fort Wayne, Indiana, Central Soya operates more than 65 plants and facilities worldwide. Central Soya is a member of the Ferruzzi Agro-Industrial Group, based in Ravenna, Italy." Address: Barry G. Collinsworth, Fort Wayne, Indiana. Phone: (219) 425-5591.

1905. Thomas, R.; deMan, J.M.; deMan, L. 1989. Soymilk and tofu properties as influenced by soybean storage conditions. *J. of the American Oil Chemists' Soc.* 66(6):777-82. June. [14 ref]
• ***Summary:*** After soybeans have been stored for 8 months, the amount of protein extracted into soymilk decreases by about 14% compared with the initial extractability, whether the soybeans are stored at 20º or 30ºC, at relative humidities of 65% or 85%. Tofu made from soybean that were stored at 85% relative humidity became less uniform in microstructure near the end of the storage period. The volume of whey resulting as a by-product of the tofu increased with soybean storage time. Address: Dep. of Food Science, Univ. of Guelph, Guelph, ONT, Canada N1G 2W1.

1906. Chandra, Ranjit Kumar; Puri, S.; Hamed, A. 1989. Influence of maternal diet during lactation and use of formula feeds on development of atopic eczema in high risk infants. *British Medical J., Clinical Research edition* 299(6693):228-230. July 22. [17 ref]
• ***Summary:*** Eczema was less common and milder in babies who were breast fed. Of the three formulas tested, casein hydrolysate caused the least eczema (22%), followed by soy milk (Prosobee, 63%), and cow's milk (70%). Address: Memorial Univ. of Newfoundland, Janeway Child Health Centre, Newfoundland A1A 1R8, Canada.

1907. Dawson, R.J. 1989. Concerns in regulating vegetable food proteins. In: T.H. Applewhite, ed. 1989. Proceedings of the World Congress on Vegetable Protein Utilization in Human Foods and Animal Feedstuffs. Champaign, IL: American Oil Chemists' Society. xii + 575 p. See p. 230-33.
• ***Summary:*** "Vegetable food proteins, being nutrients and not additives in most countries are subject to general food legislation, which is based on quality protection, safety, nutritive value and organoleptic criteria. In addition they are subject to regulation for use as food ingredients. There are many countries in the world, e.g., Belgium, Canada, Denmark, Finland, France, Federal Republic of Germany, India, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Peru, Sweden, U.K., U.S.A. and EEC, which have established national and group regulations for the use of vegetable proteins in food.

Contents: Assessment of the present situation. Codex Alimentarius Commission: It was established as an intergovernmental body in 1962 by FAO and WHO to ensure fair practices in international trade and protect the health of the consumer; It has established more than 200 individual commodity standards. Creation of a Codex Committee on Vegetable Proteins (CCVP) in 1978. Activities of the CCVP: Elaboration of international standards for vegetable protein foods. Codex criteria applicable to commodities: Regulation of the use of vegetable proteins in food, use of VPP [vegetable protein products] for their functional properties, use of VPP to increase content of utilizable protein, use of VPP in partial or complete substitution of the animal protein in foods, use of VPP as sole protein source in products with new identities, quantitative methods for the differentiation of vegetable and animal protein. Address: Food and Agriculture Organization of the United Nations, Via Delle Terme di Caracalla, 00100 Rome, Italy.

1908. deKieffer, Donald E. 1989. Government-imposed restrictions on international trade in proteins. In: T.H. Applewhite, ed. 1989. Proceedings of the World Congress on Vegetable Protein Utilization in Human Foods and Animal Feedstuffs. Champaign, IL: American Oil Chemists' Society. xii + 575 p. See p. 17-24.
• ***Summary:*** Contents: Abstract. Introduction (Theory of competitive advantage, cartelization, deregulation). The problem: World oversupply of protein products. Government interventions in oilseeds: The European Community (proposed EC consumption tax, European import barriers, EC policy on rapeseed, Spain's domestic consumption quota, Spain's export subsidies, Portugal's domestic consumption quota), Brazil (differential export taxes, preferential export financing, tax exemptions and deductions, minimum price system), Argentina (the Reembolso, the differential export tax system, price support system), Malaysia (differential export duty system), Japan, the United States (the guaranteed loan program, PL-480 and GSM credit programs, tropical oils bill, the drought bill, import barriers), Canada. Government interventions in dairy trade: European Community, United States, Canada. Government interventions in dairy trade. Discussion.

"Japan is a major importer of oilseeds and oilseed products... Imports of U.S. soybeans for crushing alone amounted to $784 million last year." However Japan "maintains a monopolistic import regime that combines high tariffs and nontariff trade barriers designed to protect Japan's processing industries." Japan's government "requires that formula feed contain specific amounts of domestic cornmeal and 2% fish meal for on-farm mixing intended for resale. These requirements limit the incorporation of alternative products in the mixture. The U.S., for example, has been able to export soybeans to Japan, but not soymeal. If Japanese farmers were able to eliminate expensive fish meal from the feed, exporters argue, they could replace it with imported soybean meal."

A photo shows Donald deKieffer. Address: Pillsbury, Madison & Sutro, Suite 1100, 1667 K St. N.W.,

Washington, DC 20006.

1909. Hesser, J.M. 1989. World food uses of vital wheat gluten. In: T.H. Applewhite, ed. 1989. Proceedings of the World Congress on Vegetable Protein Utilization in Human Foods and Animal Feedstuffs. Champaign, IL: American Oil Chemists' Society. xii + 575 p. See p. 116-22. Contains 2 pictures and 12 tables. [11 ref]
• ***Summary:*** Contents: Abstract. Introduction: Functional properties: Composition and general properties, Codex Alimentarius International Standard for vital wheat gluten, viscoelasticity, water absorption, pH effects, flavor, nutritional properties, Protein Efficiency Ratio of wheat gluten blended with soy flour in various ratios.

Applications: Milling and flour fortification, bakery products, breakfast cereals, meat, fish and poultry products, pasta, cheese analogs and pizza, nutritional snacks, breadings, batter mixes, coatings and flavorings, pet foods, aquaculture feeds. New applications.

World production, consumption and capacity: Comparison of wheat gluten production by major geographical areas–1980 and 1987, 1987 EEC wheat gluten capacity and production by country, worldwide end uses for wheat gluten in 1980 and 1987. World market: Overview of 1987 supply and trade by major geographical regions, Australian, European and North American wheat gluten consumption by end-use amount (in 1,000 tons) and percent, Argentine wheat gluten demand by end-use, Japanese wheat gluten demand by end-use. Product quality. Acknowledgment. A photo shows J.M. Hesser.

The Protein Efficiency Ratio of wheat gluten is low (only 0.8), compared with 2.0 for soy flour; but a 30:70 blend has a PER of 2.4.

The world's major wheat gluten producing areas in tons (1980 / 1987) are: Europe 29,500 / 132,300 (89% of this is produced in EEC countries), North America (USA, Canada, and Mexico) 30,000 / 54,000, Australia 24,000 / 45,000, South America 2,000 / 7,000, Japan 3,000 / 6,700.

1987 EEC wheat gluten production by country: Netherlands 24,000, United Kingdom 22,500, Germany 22,000, France 20,000, Others 11,800: Total: 118,300.

Changes in worldwide end-use patterns for wheat gluten 1980 / 1987 (percent): Baking 77 / 63, milling (flour fortification) 4 / 14, meats 0 / 5, pet foods 10 / 8, cereals 3 / 2, other 6 / 8.

Overview of 1987 wheat gluten production / net imports / consumption by major geographical regions (tons): Europe (EEC) 118,300 / -20,000 / 98,300, North America 54,000 / 35,600 / 89,600, Australia 45,000 / -26,900 / 18,100, Japan 6,700 / 3,300 / 10,000, South America 7,000 / -2,500 / 4,500. Address: International Wheat Gluten Assoc., 4510 W. 89th St., Prairie Village, Kansas 66207. Phone: 913-341-1155 or 1156.

1910. McKinnon, P.J.; Christensen, D.A. 1989. Canola meal for livestock and poultry. In: T.H. Applewhite, ed. 1989. Proceedings of the World Congress on Vegetable Protein Utilization in Human Foods and Animal Feedstuffs. Champaign, IL: American Oil Chemists' Society. xii + 575 p. See p. 449-62. [43 ref]
• ***Summary:*** Contents: Abstract. Introduction. Nutrient content of canola meal. Canola meal for pigs. Canola meal for poultry. Canola meal for dairy cattle.

"Canola meal could be considered an early progeny of biotechnology. Canola was genetically developed from rapeseed to result in an oilseed that yields a protein meal low in sulphur containing compounds referred to as glucosinolates." A photo shows one of the authors. Address: 1. Canola Crushers of Western Canada. No. 170, 14315-118 Avenue, Edmonton, Alberta, Canada T4L 4S6; 2. Dep. of Animal and Poultry Science, Univ. of Saskatchewan, Saskatoon, SASK, Canada S7N 0W0.

1911. Reeder, John. 1989. U.S. import/export statistics on soy products (Interview). *SoyaScan Notes.* Aug. 3. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** John's specialty is tracking statistics on fats, oils, and oilseeds, plus natural gums and resins. The main publication carrying soy-related import statistics is titled "U.S. Imports for Consumption: U.S. Census Bureau Publication IM146." It is published by the Foreign Trade Div. of the U.S. Census Bureau and is available in a monthly published paper version, or on microfiche, or in electronic database form. With soy, it covers soybeans (Heading/subheading 1201.00), soy flour (1208.10), and soy sauce (2103.10). Miso and tofu statistics are lumped in with hundreds of other minor products in the catch-all basket category "Edible Preparations."

In the tariff part of the report, for each item there is an article description, units of quantity (e.g. kg), and rates of duty (general, special, or 2). For example, soy sauce has a general duty rate of 3%, which is granted to all "most favored nations." The "Special" column shows that it is imported duty free from countries with the codes A (Generalized System of Preferences, applied to many developing countries), E (CBERA or Caribbean Basin Economic Recovery Act), or IL (Israel). CA = Canada gets a reduced rate of 2.7%, which will be reduced to zero over the next 5-10 years under the recent Canadian Free Trade Agreement. Column 2, indicates that a 35% import duty applies to most Communist countries, except those (such as China) with "Most Favored Nation" status, when get the General rate.

In the imports part of the report, under each product (e.g. soy sauce, thin = soy sauce) there is a listing of countries, sorted by region from which the USA imports. After each country there may be the codes GSP (the amount of product imported under the lower General System of

Preferences rate, because it has been shown to be as domestic product of that country), and OGN (the amount of product imported under the General rate because it has not been proved to be a domestic product), plus a total for the two. Then statistics for the current month and cumulative from January to date, of the quantity imported (which may be reported in two sets of units, Qty-1 and Qty-2, such as pounds and gallons), the customs value (the Free on Board or FOB value declared by the importer at the foreign port of export), and the calculated duty received by the U.S. based on the customs value.

The report is also available at federal depository libraries, such as Univ. of California at Berkeley. On 1 Jan. 1989 the way of reporting data was changed to the "Harmonized Tariff Schedule of the United States" from the old "Tariff Schedule of the United States" (TSUS) system. This changes some nomenclature and makes the U.S. reporting more similar to that of may other countries, which facilitates determining tariffs and quotas on given items.

Corresponding export statistics are given in another report titled "Schedule B: U.S. Exports of Domestic Merchandise, FT410" published monthly by the U.S. Census Bureau. Each product has the same product code (e.g., soy sauce is 2103.10).

Another publication is the Directory of International Trade Analysts: Commodity Agreements.

Good databases for searching soy-related data are Disclosure, and Nexus (business news). Address: U.S. International Trade Commission, Agricultural Div., Washington, DC 20436. Phone: 202-252-1319.

1912. Chandra, Ranjit Kumar; Singh, G.; Shridhara, B. 1989. Effect of feeding whey hydrolysate, soy and conventional cow milk formulas on incidence of atopic disease in high risk infants. *Annals of Allergy* 63(2):102-06. Aug. [26 ref]

• ***Summary:*** Some of the infants were fed Similac or Isomil infant formulas. "It is concluded that exclusive breast feeding for more than 4 months is partially protective against the development of atopic disease among high risk infants. Among those not breast-fed, feeding a milk/whey hydrolysate formula to infants at high risk because of history of atopy among first-degree relatives reduces the incidence of atopic disease and this approach is significantly beneficial compared with breast feeding without maternal dietary restriction or feeding a soy-based formula." Address: Dep. of Pediatrics, Memorial Univ. of Newfoundland, and the Immunology Lab., Janeway Child Health Centre, St. John's Newfoundland, Canada.

1913. National Oilseed Processors Association. 1989. Yearbook and trading rules 1989-1990. Washington, DC. [iv] + 123 + 11 p. 23 cm.

• ***Summary:*** On the cover (but not the title page) is written: Effective August 1, 1989. Contents: Constitution and by-laws. Officers and directors. Executive office. Members. Associate members. Standing committees. Trading rules on soybean meal. Appendix to trading rules on soybean meal: Official methods of analysis (moisture, protein, crude fiber, oil {only method numbers listed}), sampling of soybean meal {at origin} (automatic mechanic sampler, pneumatic probe sampler, probe sampler), sampling of soybean meal (at barge loading transfer facilities), official weighmaster application, semi-annual scale report, certification of installation of automatic sampler & mechanical divider (at origin), semi-annual certification of automatic sampler & mechanical divider (at origin), certification of installation of automatic sampler & mechanical divider (at barge loading transfer facility), semi-annual certification of automatic sampler & mechanical divider (at barge loading transfer facility), official referee laboratories (meal), official NSPA soybean meal sample bag. Soybean meal export trading rules: Minimum blending procedures for export meal blended at ports, sampling of soybean meal (at vessel loading facilities), weighing of soybean meal (at vessel loading facilities), certification of installation of automatic sampler & mechanical divider (at vessel loading facility), semi-annual certification of automatic sampler & mechanical divider (at vessel loading facility), semi-annual certification of scales at vessel loading facilities. Trading rules on soybean oil. Sales contract. Definitions of grade and quality of export oils. Soybean lecithin specifications. Appendix to trading rules on soybean oil: Inspection, grading soybean oil for color (NSPA tentative method), methods of analysis (A.O.C.S. official methods): Soybean oil, crude; soybean oil, refined; soybean oil, refined and bleached; soybean oil for technical uses; soap stock, acidulated soap stock and tank bottoms (only method numbers listed), official weighmaster application, semi-annual scale report, official referee chemists (oil). Soybean oil export trading rules. Uniform soybean oil export contract. Foreign trade definitions (for information purposes only) Appendix 1.

The section on officers, executive committee, and board of directors (p. 7-8) gives the name, company affiliation, and phone number of each person. Officers (executive committee)–Chairman: James W. Lindsay, Ag Processing Inc a cooperative [AGP], Vice Chairman: C. Lockwood Marine, Central Soya Co., Inc. Secretary: John March, Cargill, Inc. Treasurer: John Burritt, National Sun Industries, Inc. Immediate past chairman: John G. Reed, Jr., Archer Daniels Midland Co.

Executive staff: President: Sheldon J. Hauck. Executive vice president: Brose A. McVey.

Board of directors (alphabetically by company; each member company may have up to two representatives on the board; only the first of these may vote): James W.

Lindsay & William C. Lester, Ag Processing Inc a cooperative. John G. Reed, Jr. & Michael D. Andreas, Archer Daniels Midland Co. John March & Thomas O. Palmby, Cargill, Inc. C. Lockwood Marine & David H. Swanson, Central Soya Co., Inc. David B. Mulhollem & Bernard Steinweg, Continental Grain Co. Ian White & Donald G. Foster, Elders Oilseeds Inc. Merritt E. Petersen & Stan Eichten, Honeymead Products Co. John Burritt & Jeff Berkow, National Sun Industries, Inc. John M. Wright & Henry E. O'Bryan, Owensboro Grain Co., Inc. Sewell L. Spedden & William Bohan, Perdue Incorporated. Paul D. Otto & J. Richard Galloway, Quincy Soybean Co. James K. Smith & Richard E. Bell, Riceland Foods, Inc. Thomas L. Harper, Southern Soya Corp. D. Daryl Houghton & P. Coleman Townsend, Townsends, Inc.

Executive office, Washington, DC: President, Sheldon J. Hauck. Executive vice president: Brose A. McVey. Administrative asst.: Steven C. Kemp. Legislative asst.: Elizabeth A. Loudy. General counsel: Elroy H. Wolff, Sidley & Austin. Special counsel: Richard O. Cunningham, Steptoe & Johnson.

Members (listed alphabetically by company; within each company, first the name of the official Association representative {who is on the Board and votes}, followed by the other personal members listed alphabetically by surname. For example, Archer Daniels Midland Co., the company with the most personal members, has 34. After the name of each personal member is given with his address and phone number. In the listing below, the number of personal members is shown in parentheses after the name of each company, followed by city and state of the various locations): Ag Processing Inc a cooperative (21); Van Buren, Arkansas; Eagle Grove, Iowa; Manning, Iowa; Mason City, Iowa; Sergeant Bluff, Iowa; Sheldon, Iowa; Dawson, Minnesota; St. Joseph, Missouri. Omaha, Nebraska. Archer Daniels Midland Co. (23); Archer Daniels Midland Co. (24); Little Rock, Arkansas; Augusta, Georgia; Valdosta, Georgia; Decatur, Illinois; Galesburg, Illinois; Granite City, Illinois; Taylorville, Illinois; Frankfort, Indiana; Des Moines, Iowa; Fredonia, Kansas; Destrehan, Louisiana; Mankato, Minnesota; Red Wing, Minnesota; Kansas City, Missouri; Mexico, Missouri; Clarksdale, Mississippi; Fremont, Nebraska; Lincoln, Nebraska; Fostoria, Ohio; Kershaw, South Carolina; Memphis, Tennessee. Cargill, Inc. (20); Osceola, Arkansas; Gainesville, Georgia; Lafayette, Indiana; Cedar Rapids, Iowa; Des Moines, Iowa; Iowa Falls, Iowa; Sioux City, Iowa; Washington, Iowa; Bloomington, Illinois; Chicago, Illinois; Wichita, Kansas; Burnsville, Minnesota; Minneapolis, Minnesota; South Savage, Minnesota; Wayzata, Minnesota; Kansas City, Missouri; Fayetteville, North Carolina; Raleigh, North Carolina; Sidney, Ohio; Memphis, Tennessee; Chesapeake, Virginia. Central Soya Co., Inc. (13); Gibson City, Illinois; Decatur, Indiana; Fort Wayne, Indiana; Indianapolis, Indiana; Belmond, Iowa; Bellevue, Ohio; Marion, Ohio; Delphos, Ohio; Chattanooga, Tennessee. Continental Grain Co. (8); Guntersville, Alabama; Chicago, Illinois; New York City, New York. Elders Oilseeds Inc. (3); Culbertson, Montana; Blaine, Washington. Honeymead Products Co. (3); Mankato, Minnesota. National Sun Industries, Inc. (3); Minneapolis, Minnesota. Owensboro Grain Co., Inc. (4); Owensboro, Kentucky. Perdue Incorporated (4); Salisbury, Maryland; Cofield, North Carolina. Quincy Soybean Co. (6); Helena, Arkansas, Quincy, Illinois. Riceland Foods, Inc. (7); Stuttgart, Arkansas. Southern Soya Corp. (2); Estill, South Carolina. Townsend's Inc. (2); Millsboro, Delaware.

Associate Members: ADM Agri-Industries Ltd., Windsor, Ontario, Canada. Beatrice / Hunt-Wesson, Fullerton, California. Best Foods, a Unit of CPC International Inc., Englewood Cliffs, New Jersey. Bestel Inc., Minneapolis, Minnesota. C&T Refinery, Inc., Richmond, Virginia. Con Agra Poultry Co., El Dorado, Arkansas. Conti-Quincy Export Co., New York City, New York. Louis Dreyfus, Wilton, Connecticut. Empire Kosher Poultry, Inc., Mifflintown, Pennsylvania. Garnac Grain Co., Overland Park, Kansas. Goldman Sachs–J. Aron Div., New York City, New York. K&L Feeds, Inc., Selinsgrove, Pennsylvania. Kraft Food Ingredients Corp., Glenview, Illinois; Memphis, Tennessee. Krohn Trading Limited Partnership, New Orleans, Louisiana. Lever Bros Company, Inc., New York City, New York. Overseas Commodities Corp., Minneapolis, Minnesota. Pilgrim's Pride Corp., Pittsburg, Texas. Pillsbury Co. (The), Overland, Kansas; Minneapolis, Minnesota. Procter & Gamble Co., Cincinnati, Ohio. Purina Mills, Inc., St. Louis, Missouri. Ralston Purina Co., St. Louis, Missouri. Schouten International, Inc., Minneapolis, Minnesota. A.E. Staley Manufacturing, Decatur, Illinois. Alfred C. Toepfer International, Inc., New York City, New York (Knud Winkelman). Tradecom, Inc., Boca Raton, Florida. Van Den Bergh Foods Co., Chicago, Illinois.

Standing committees: For each committee, the function of the committee, the names of all members (with the chairman designated), with the company and company address of each are given–Crusher committees: Canola, flaxseed, safflower seed, sunflower seed. International trade policy. Soybean meal trading rules. Soybean oil trading rules. Safety, health, and loss prevention. Technical. Address: 1255 Twenty-Third St., N.W., Washington, DC 20037. Phone: 202/452-8040. Telex: 248959. Fax: 202/833-3636.

1914. *SoyaScan Notes.*1989. Sixty-five books on tofu have been published in the Western World since 1970 (Overview). Sept. 17. Compiled by William Shurtleff of Soyfoods Center.

• ***Summary:*** Definition: The work must be more than 48 pages long, must have the word "tofu" or its equivalent in the title, and must be written in a non-Asian language. It may be either a popular or a professional/technical work.

By country of publication, 40 of these books (61% of the total) have been published in the USA, 6 in Canada, 5 in Switzerland, 5 in Japan (but written in English for sale primarily outside of Japan), 3 in West Germany, 3 in France (but 2 of these were published simultaneously and primarily in Quebec, Canada), 2 in England, and 1 each in Italy, Sweden, and Brazil. By region of publication: North America 46 (71% of the total), Europe 15, East Asia 5, and Latin America 1.

By language, 49 of these books (75%) have been published in English, 7 in French, 6 in German, and 1 each in Italian, Portuguese, and Swedish.

By year of publication, the first of these books was published in 1974; eleven (17% of the total) were published from 1974 to 1979, forty (62%) from 1980 to 1984, and fourteen (22%) from 1985 to 1989. The peak years of publication were 1981 and 1982, when 12 books on tofu were published each year.

The best sellers among these books have been *The Book of Tofu* by Shurtleff & Aoyagi (1975, Ballantine Books, Autumn Press, and Ten Speed Press, about 450,000 copies sold in English editions and 9,000 in foreign editions), *Tofu Cookery* by Louis Hagler (1982, The Book Publishing Co., about 175,000 copies sold), *The Tofu Cookbook* by Cathy Bauer and Juel Andersen (1979, Rodale Press, 105,500 copies sold, still in print), *Cook with Tofu* by Christina Clarke (1981, Avon Books, 57,500 copies printed; still in print), and *Tofu, Tempeh, & Other Soy Delights* by Camille Cusumano (1984, Rodale Press, 25,688 copies sold; out of print). These best-sellers have sold a combined total of 822,700 copies, and all tofu books have probably sold over 1 million copies.

1915. **Product Name:** Tofu Burgers, Teriyaki Burgers, Miso Burgers, Tofu Nuggets [Plain, or Barbeque].
**Manufacturer's Name:** La Soyarie.
**Manufacturer's Address:** 25 rue St. Etienee, Hull, QUE, J8X 1H5, Canada. Phone: 613-235-5356.
**Date of Introduction:** 1989. October.
**Ingredients:** Incl. tofu, soy sauce.
**How Stored:** Refrigerated.
**New Product–Documentation:** Soya Bluebook. 1989. p. 102-03. Contact: Koichi Watanabe, President.

SoyaCow Newsletter. 1994. July/Sept. Mr. Koichi Watanabe is president of La Soyarie in Hull, Quebec.

1916. **Product Name:** Nature's Patties [Original, or B.B.Q.].
**Manufacturer's Name:** Nature's Path Foods Inc.
**Manufacturer's Address:** 170-2540 Simpson Rd., Richmond, BC, V6X 2P9, Canada. Phone: 604-278-2923.
**Date of Introduction:** 1989. October.
**New Product–Documentation:** Soya Bluebook. 1989. p. 103. Contact: Arran Stephens, President [formerly founder and president of Lifestream, a natural foods distributor in Canada].

1917. Agriculture Canada Research Station, Horrow. 1989. Description of variety: Harovinton. Harrow, Ontario, Canada. 2 p. Nov. 9. Unpublished typescript.
• ***Summary:*** Harovinton is a "Large-seeded tofu-type soybean. Registration date: May 24, 1989. Registration No.: 3118... Harovinton, tested as OX733, was developed by the Agriculture Canada Research Station, Harrow. This variety was derived from the cross Vinton x Vinton 81, made in 1982." Vinton is susceptible to Phytophthora (a fungus) and tolerant of metribuzin (an herbicide) applied at recommended rates. Growth habit: indeterminate.

"Seed characteristics: Shape: spherical flattened. Size: large; 23 grams per 100 seeds. Seed coat: dull yellow. Hilum colour: yellow. Oil content: lower than Corsoy (18.6% vs. 20.1%). Protein content: higher than Corsoy 79 (44.9% vs. 40.9%). Seed coat peroxidase activity: high.

Maturity: 3100 heat units (Ontario). Performance and adaptation: In yield trials conducted in 1986, 1987 and 1988 at Harrow, Malden and Woodslee, Harovinton yielded about 6% less than Corsoy 79. Harovinton is shorter, more lodging tolerant, and earlier maturing than Corsoy 79... The yield of soymilk and tofu per kilogram of Harovinton beans was 4% and 11% greater, respectively, than for Corsoy 79." Maintenance of breeder seed: Agriculture Canada, Research Station, Harrow, Ontario. Canadian distributor: Canada Packers.

Note 1. This is the earliest document seen (Jan. 2010) that mentions the soybean variety Harovinton.

Note 2. The letterhead reads: "Agriculture Canada, Food Production and Inspection Branch, Seed Division." No address is given. Address: Harrow, Ontario, Canada.

1918. Harovinton: New Canadian domestic soybean variety. Large-seeded and/or vegetable-type soybean. 1989. Seed color: Yellow (dull), hilum yellow.
• ***Summary:*** Sources: Agriculture Canada Research Station, Harrow. 1989. "Description of variety: Harovinton." Harrow, Ontario, Canada. 2 p. Unpublished typescript. Nov. 9. Harovinton is a "Large-seeded tofu-type soybean. Registration date: May 24, 1989. Registration No.: 3118."

Ontario Ministry of Agriculture and Food. 1990. *Soybean Buyers Mission from New Markets, July 1-7, 1990.* Tokyo, Japan: Ontario Ministry of Agriculture and Food. 61 p. See p. 40. Appendix 5, titled "Development of soybean varieties," states: "Researchers at the Agriculture Canada Research Station in Harrow have focused on the

development of varieties for the manufacture of tofu. With help from the OSGMB, a new variety named Harovinton, was recently released from this breeding program. This variety was higher than average protein content, white hilum and large seed size to better suit the needs of the tofu and soymilk manufacturers.

"To secure the best marketing and promotion of this variety to overseas buyers, exclusive marketing rights were given to the International Trade Division of Canada Packers Inc. and Wheatley Elevators Ltd. Both companies have extensive soybean export trading experience."

Bernard, Richard L. 1999. "Historical list of publicly developed North American specialty soybean cultivars to 1989: Large seeded." Year released: 1989. Developed by: Ontario, Harrow. Cultivar: Harovinton. Maturity group: I. Parentage: *Hm Rpsl-c* from Vinton x Vinton 81.

Note: Harovinton was the first food-grade soybean variety developed in Canada for the Japanese tofu industry, and helped pave the way in establishing Canadian food-grade soybeans as a premium quality product in Asia. Address: USA.

1919. O'Bannon, Kathleen. 1989. The last years of Victor Food Products in Canada (Interview). *SoyaScan Notes.* Dec. 7, and 6 March 1990. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** The problems started in three areas. First was the growing competition from small Chinese tofu companies. There were 6-10 little Asian-Canadian tofu makers, some making tofu in a bathtub in their basements, and selling it for cut-rate prices. One even attempted to get into Stephen's plant, disguised as a food inspector, to spy on/study his equipment. Stephen wanted to get out of the "Chinese tofu wars." The second cause was the two gay followers of the Indian guru Rajneesh. One day they came seeking employment, saying that they had made tofu in Poona for years. George Harris (Bodhi-dharma) was the good guy; Kathleen hired him after a careful background check. But when he left to live on the Rajneesh commune in Oregon (where he ended up staying for nearly a year), his partner, Kirti (Joe Lewis) took his place. Joe Lewis turned out to be a malicious character–at times pure evil. The Rajneesh commune in Oregon would not let him live there, which angered him. He became the bookkeeper and office manager. He made life so difficult for Kathleen and ruined the good friendship that she had had with Stephen Yu (he deliberately connived to turn each against the other), that she finally felt compelled to leave the company in 1984. Joe Lewis falsified the company books, making it look like the company had more accounts receivable that was the case; this led local banks to refuse key loans to the company and to distrust Stephen. Joe Lewis charged the company for more time than he was working, messed up the office, then finally got into a big fight with Stephen. The Rajneesh guys were talking about suing Stephen. Finally Stephen fired them both.

The third cause was Bing, who was one of Stephen's long-time key production employees. He was very chummy with the Rajneesh guys. Bing left and told everything he knew to somebody else down-town, found somebody with money, set up a business in Chinatown and competed fiercely with Stephen.

After Kathleen left the first time but before Joe Lewis was fired, someone approached Stephen Yu about a joint venture making soymilk ice cream with a company named Tofu Parlor (formally Tofu Restaurant and Ice Cream Parlors, 304 Victoria Ave. East, Regina, SASK, S4N 0N7, Canada [near Saskatoon]. Owner: Wayne Knipple), which was already making soymilk ice cream. Stephen found one or two investors. One was John van Kessel, a 55-year-old chain-smoking accountant and computer expert, who was part of Tofu Parlor, invested money in Victor Food Products (VFP), liked to tell dirty jokes. The other was Larry Ginsberg. Stephen did a great deal of original research, using custom-designed equipment, to develop a new process for making excellent quality soymilk and ice cream from that soymilk. He worked with Guelph University researchers (such as Dr. Leni DeMann, a woman) to eliminate the gas and chalky flavor from soymilk. Kathleen and others thought this ice cream tasted better than Haagen-Dazs, and many people felt that the soymilk and the ice cream had great potential. But the Chinese on the Board of Directors VFP wanted Stephen to behave like a Chinese and just make tofu. They were opposed to the ice cream venture and they tied his hands.

In order to get around this limitation, in late 1985 or early 1986 Stephen decided to start a new corporation (at the same address as VFP–102 Hymus Road, Scarborough, Ontario, Canada M1L 2C9) named Tofu Master Inc. Van Kessel and Ginsberg owned part of it. The Chinese on the board of VFP had nothing to do with the new company. VFP would focus its marketing on the Asian-Canadian market and Tofu Master would aim for the Caucasian market. Stephen could now do more R&D. Stephen then brought in some new people to do the soymilk production. Tofu Master launched a firm and a soft tofu Tofu Master brand, and Entice (the soy ice cream) under the Tofu Parlor brand. The ice cream was made in a small, independent dairy in Toronto, and certified kosher. It came in individual small (100 ml) cups in chocolate, strawberry, and vanilla flavors. Stephen had the rights to sell to foodservice institutions and hospitals; Tofu Parlor in Saskatchewan had rights to the retail market. Saskatchewan also made a Tofu Parlor Bar (ice cream on a stick). Stephen also developed a remarkable vacuum packed Tofu Master Gourmet Tofu (in Barbecue, Herb & Green Onion, Cheese, and Bacon flavors). When he vacuum packed this tofu (either sliced or in whole cakes) in a remarkable machine he had, the process sucked the flavors

into the tofu. But the banks wouldn't loan him the money to market the products because of what Joe Lewis had done, so it never was launched. By this time Stephen had lost so much face with the Chinese that they didn't want him to do anything that was not Chinese. He had to fight this attitude the whole way. Tofu Master was apparently the cause of the company's bankruptcy, for the project was never completed.

After Stephen fired Joe Lewis, Kathleen came in for 7 months. She ran the plant, did the recipes and promotion and marketing, and straightened up the office after Joe Lewis had messed things up. She helped promote the new ice cream. After that she got in an accident when she tripped on something and fell. She injured her neck, her lungs collapsed, and her back and neck were out for a year. She was very ill and had to have surgery. She left in Sept. 1987 and moved to Santa Fe, New Mexico, where she is now living. The company was still very much alive at that time. The company sold the equipment from the bankruptcy in April 1988. When she returned in November 1988 to do a health foods trade show in Toronto she was very surprised to hear that Victor Food Products had gone under. She can only assume that the people who were calling the shots had made big mistakes. Kathleen was very close to Stephen and felt very badly about what happened to him. Apparently after the bankruptcy he went to work with his brother-in-law who ran a Gold Chin fast food Chinese restaurant franchise.

Kathleen first made tofu in the early 1970s in her barn. She has followed the Sikh philosophy, was a yoga teacher for 8 years. He company in Toronto was named Natural Light Publications. She wrote a cookbook titled "Tofu: How to do it book," which was scheduled to be published in the winter of 1983 and to be sold with a stainless steel tofu kit that Stephen Yu was developing, to be produced in China. The kit turned out to be too expensive to make, so neither the kit nor the book was ever sold. Kathleen is now writing a book on "Nutrition and the Bible" and doing 6 home videos on cooking with natural foods. She wants to lecture on health and nutrition. Udo Erasmus has written a good book titled *Fats and Oils* published by Alive Press. It argues that butter is a safer product than margarine. Heating oils causes the free radicals to break off. They circulate in the body, causing many diseases and problems. Address: 227 Ojo de la Vaca, Santa Fe, New Mexico 87505. Phone: 505-983-5961.

1920. Rogers, Wally. 1989. The Continuous Cooking System sold by Bean Machines, Inc. (Interview). *SoyaScan Notes.* Dec. 11. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Larry Needleman began to develop this cooker in about 1983. It is a continuous, pressurized system. The first one was purchased by Silver Sprout in San Francisco in 1984 for about $17,000. They were never able to make it work, and eventually they junked it. On 1 Aug. 1984 Wally Rogers moved to California and soon he and Steve Fiering bought Bean Machines from Larry Needleman. Wally and Tim Huang did a lot of work on the cooker at the University of California at Davis. The second one was ordered by Tomsun Foods, but they never installed or paid for it. That one is now used by China Rose (formerly Rosewood Foods and The Soy Plant) in Ann Arbor, Michigan. Purchased by them in Dec. 1988, it has a capacity of 300 gallons/hour. Two other systems have been sold: One in Sept. 1989 to Unisoya in Montreal, Canada (600 gallons/hour), and one in Nov. 1989 to Soyfoods of America (800 gallons/hour; Tim Huang now works there). Mr. Eng Lim of Mandarin Enterprises in Richmond (near Vancouver), BC, Canada, is also thinking of buying one. The current price of a 300 gallon/hour system with a cooking time of 2 minutes is $28,500 FOB Hayward, California. The corresponding price of a 600 gallons/hour system is $34,500. The system's modular design allows for simple and inexpensive expansion. The system meets all dairy standards, operates at 230ºF and is CIP.

Note: After the interview, Rogers sent two product description sheets and a color photo of the system.

Update: Talk with Wally Rogers. 1991. Nov. 4. Wally has now installed 6 continuous cookers. The latest showcase system, installed at cost, is at Wildwood Natural Foods in Santa Cruz. It reduced the number of workers by two and saved 2 cents/pound on the cost of making tofu. Wally sold a system to a dairy in Peru. They plant to blend soymilk with cow's milk to reduce the cost; the soymilk will cost 18 cents/liter. They will also sell soymilk in plastic bags. Wally now offers a soymilk system that can produce soymilk whose flavor is as good as that from an Alfa-Laval or an APV/DTD system but whose equipment cost is only 10-15% as much–with a continuous cooker. Tim Huang has left Soyfoods of America for a new career in medicine in Chicago, Illinois. Wally likes the Nichii Microsoy flakes.

Update: Talk with Wally Rogers. 1994. Aug. 22. Other companies that have purchased his Continuous Cooking System are: Wildwood Natural Foods (California; 300 gallons/hour capacity), Les Aliments Alfa (Bolivia, South America; 600 gallons/hour), Northern Soy (Rochester, New York; 500 gallons/hour), Mandarin Enterprises (Vancouver, BC, Canada; 300 gallons/hour). White Wave (Boulder, Colorado).

He now also sells a centrifuge for soymilk extraction, priced at $19,500 FOB San Francisco. It is made in China and has no expensive screens to replace. The capacity is approximately 150 to 200 kg of dry soybeans per hour, with a 3 horsepower motor.

Talk with an owner of a Bean Machines cooker. 1998. Aug. 25. The slurry is cooked in a long tube, under pressure, at various temperatures starting at 212ºF, reaching a peak of 230ºF, and falling to 200ºF at the exit end.

Address: President, Bean Machines Inc., 390 Liberty St. #2, San Francisco, California 94114. Phone: 415-285-9411.

1921. **Product Name:** Soya Nova Marinated Tofu Slices [Spicy, Curry, or Barbecue].
**Manufacturer's Name:** Soya Nova Tofu Shop.
**Manufacturer's Address:** R.R. #2 Rourke Road, C-28, Ganges, Saltspring Island, BC, V0S 1E0, Canada. Phone: 604-537-9651.
**Date of Introduction:** 1989.
**Ingredients:** Tofu: Organically grown soybeans, nigari, well water. Marinade: Water, tamari soy sauce, unrefined oil (safflower and toasted sesame oil), herbs, spices, fresh onion, garlic.
**How Stored:** Refrigerated.
**New Product–Documentation:** Letter from Greg Lundh of Silverking Soya Foods in Nelson, BC, Canada. 1990. Dec. 14. Soya Nova Tofu Shop introduced this product in 1989.

1922. Al-Guboury, A.A.; Jawad, I.M. 1989. [Chemical characteristics of oils extracted from soybean varieties grown in Iraq and the effect of planting sites on their properties]. *J. of King Saud University, Agricultural Sciences* 1(1-2):121-132. [26 ref. Ara; eng]*
Address: Agricultural and Water Resources Center, Jadiriyah, Baghdad, Iraq.

1923. Thompson, Lilian U. 1989. Nutritional and physiological effects of phytic acid. In: J.E. Kinsella and W.E. Soucie, eds. 1989. Food Proteins. Champaign, Illinois: American Oil Chemists' Society. vii + 440 p. See p. 410-31. [134* ref]
• ***Summary:*** Contents: Introduction. Phytic acid in the food and its reactions. Mineral Bioavailability: Method of processing, added vs. endogenous PA [phytic acid], the presence of other mineral binding components such as dietary fiber, oxalic acid and tannins which may compete with PA for binding with minerals, dietary protein concentration, presence of dietary, intestinal or bacterial phytase, whether the PA is taken in the same meal as the mineral source or in separate meals, presence of other minerals, metabolic adaptation to a high PA diet. Protein digestion and absorption. Starch digestion and absorption. Phytic acid and colonic health. Conclusion. Address: Dep. of Nutritional Sciences, Faculty of Medicine, Univ. of Toronto, Toronto, Ontario, Canada.

1924. IITA Grain Legume Improvement Program (GLIP). 1989? IITA/IAR&T/IDRC Soybean utilization project. Ibadan, Nigeria: International Institute of Tropical Agriculture. (Internal circulation). Undated. *
• ***Summary:*** IDRC is the International Development Research Centre of Canada. Address: Ibadan, Nigeria.

1925. Gouvernement du Québec, Ministère de l'Agriculture, des Pêcheries et de l'Alimentation, Conseil des Productions Végétales du Quebec (CPVQ). 1990. Soya culture [Soybean cultivation]. Quebec, Canada. 47 p. AGDEX 141/20. 28 cm. [Fre]
• ***Summary:*** This French-language booklet about soybean production and utilization in Quebec, was compiled by a committee of 12 experts. Contents: Introduction: The importance of soya, perspectives and the development of the market. Preparation of the soil and seedbed prior to sowing: The particular needs of soya, soil management, reduced working of the soil. Fertilizers: The needs of soya. Inoculation: The needs of soya, techniques of inoculation. Sowing: Choice of the proper variety/cultivar, seed drills, sowing. Harvest, drying and storage. Utilization of soya in animal production: Advantages and disadvantages, technological treatments applied to whole soybeans, feeding of dairy cows, feeding of pigs and sows, feeding of poultry, quality of processed soybeans, conclusion.

Table 1 shows that soybean area in Quebec increased from 1,400 ha in 1981, to 12,500 ha in 1988, and an estimated 19,000 ha in 1989. Soybean production grew from 7,200 tonnes in 1985, to 28,600 tonnes, to an estimated 45,000 tonnes in 1989. Table 2 shows 9 soybean processing plants in Quebec; these have a total annual capacity of 95,000 tonnes. There are no solvent extraction plants. The largest plants do extrusion and micronization.
Address: Quebec.

1926. Smith, Preston. 1990. Agriculture's free trade advocate: How Aussies deal with fewer subsidies. *Soybean Digest.* Jan. p. 28d-e.
• ***Summary:*** "At this Senate confirmation hearing, Secretary of Agriculture Clayton Yeutter, who might consider himself the epitome of free-traders, said, 'We need to break the bonds between government and agriculture.'...

"During his last three years as U.S. Trade Representative, Yeutter headed up the U.S. proposal to the General Agreement on Tariffs and Trade (GATT) to phase out all trade-distorting agricultural subsidies worldwide. But no matter how bold this proposal is, Yeutter has reiterated that the U.S. will not 'unilaterally disarm' its agricultural subsidies until everybody else does.

"If the U.S. were looking for a model of free enterprise and trade–and one that shows a unilateral phase-out of subsidies–it could easily look to Australia. In 1982, the Australian government decided to deregulate its industries, such as banking, shipping and agriculture. In short, Australia has decided not only to speak free trade, but also to phase out farm subsidies, regardless if any other country does...

"A 1987 Economic Research Service study says Australia had one of the lowest producer subsidy equivalents (PSE) in the world. PSE is the portion of

farmers' gross income that comes from government assistance... During 1982 to 1986, Japan had an average PSE of 72%, the European Community was at 35%, Canada 31%, the U.S. and New Zealand each 25% and Australia 11%...

"In 1901, Australia gained independence from Britain... Unlike the U.S., where programs date from the 1930s and have grown in the 1980s, the Australian key farm programs started in the late 1950s and faded in the 1970s."

1927. Quigley, Brian. 1990. New developments with Bremer Foods Corp. and soy yogurt in Quebec (Interview). *SoyaScan Notes.* Feb. 22. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** His cultured soy yogurt, which he feels is of higher quality than any American soy yogurt he has tasted, will be called Yofrutti. It may also contain Bifido bacteria [Bifidus]. The company is also working on an ice cream that will be called Bremer's Natura. A unique dairy law in Quebec prohibits the sale of any non-dairy yogurt in Quebec, but does not prohibit manufacture for export. The basis of all their products is their unique process for making a good-tasting, high-yielding soymilk. Address: Bremer Foods Corp., 3600 Casavant West, St. Hyacinthe, QUE, J2S 8E3, Canada. Phone: 514-773-1105.

1928. **Product Name:** Herb Tofu.
**Manufacturer's Name:** Kaslo Soyfoods. Renamed Silverking Soyafoods in Oct. 1990.
**Manufacturer's Address:** Box 933, Kaslo, BC, V0G 1M0, Canada. Phone: 604-353-7726.
**Date of Introduction:** 1990. February.
**Ingredients:** Soymilk, coagulant, garlic, basil, dill, chives, parsley, sometimes a little tarragon (fresh or dried).
**Wt/Vol., Packaging, Price:** Bulk.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Greg Lundh, owner. 1990. Oct. 20. He started making this product in Feb. 1990. The company name at that time was Kaslo Soyfoods. In Oct. 1990 he changed the company name to Silverking Soyafoods and moved to Silverking Group, Box #20, Nelson, BC V1L 1C9, Canada. He uses Corsoy or Vinton soybeans, usually certified organic. He buys some of his soybeans from Sunrise; brokers will not deal with his company because it is too small. The herbs listed above are added to the soymilk before coagulation. The only organic soybeans grown in Canada are grown in Ontario and they are all bought up by a big tofu maker in Toronto. He has no labels for any of his products. They are all sold bulk, to avoid packaging. 50% of all his products are sold door to door in homes, and 50% are sold in bulk pails to stores.

1929. Yu, Stephen. 1990. New developments with tofu in Toronto (Interview). *SoyaScan Notes.* March 5. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Stephen is again working with soyfoods after the bankruptcy of Victor Food Products in about June 1988. He is now working as a consultant, and his main project is to "consolidate all of the tofu makers in the area and help them to go into the market as one team." He is also trying to act as a communicator between the Soybean Marketing Board/Agricultural Canada and the tofu makers. He also has a family, with children aged 3 and 6, to support. In the last few days he has visited 6-7 tofu companies in Toronto; they all welcomed him with open arms and gave him the information he requested–although he does not know how true it is. He would like to work as a researcher for Soyfoods Center in Canada ($50/hour), and to trade information. He will send a list of what he wants to know. He is interested in knowing the amounts of various soyfoods (such as Vitasoy soymilk, Kikkoman soy sauce and tofu, etc.) imported to Canada.

He started to make soyfoods in Canada in Feb. 1978. His first three products were tofu, tofu pudding (daufu-fa), and soymilk.

He knows a man in Canada who is doing a market study of the low-tech soyfoods industry in that country. He is an independent person who is working for the Soybean Marketing Board. The study concerns the overall picture of soybean use in Canada. The most interest is in tofu, and Stephen is doing the tofu and soymilk section of the report. Stephen can put us in touch. Stephen personally lost $750,000 when Victor Food Products went Bankrupt.

Update: Talk with Stephen Yu on 8 July 1990. The report cost about $70,000 to produce. He is not sure if it will be published. He is not busy nowadays, but does not feel like working on a history of his company. Address: 525 Highland Road West, Kitchener, ONT, N2M 5K1, Canada. Phone: 519-741-0922.

1930. O'Bannon-Baldinger, Kathleen. 1990. Re: Stephen Yu of Victor Food Products petitioned the Canadian government to allow magnesium chloride to be used as a food ingredient. Letter to William Shurtleff at Soyfoods Center, March 9. 1 p. [1 ref]
• ***Summary:*** The petition was accepted in July 1981, and published in the Canadian government's list of acceptable food additives. The use was permitted only for tofu at a maximum level of 0.3%, calculated as the anhydrous salt. Address: 227 Ojo de la Vaca, Santa Fe, New Mexico 87505. Phone: 505-983-5961.

1931. *SoyaScan Notes.*1990. Use of *Bifidobacterium* species in dairylike soymilk products (Overview). March 15. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** A growing number of soy yogurts, dairy milks, and cultured milks (such as Yakult) in Europe, Japan, and Canada are being promoted as containing species "Bifido"

(pronounced BIF-uh-doe) or "Bifidus" bacteria. Keum et al. (1984) used *Bifidobacterium bifidum* as a starter for soymilk yogurt with good results. Sakai et al. (1987) showed that *Bifidobacterium breve* grown on soymilk assimilates the flatulence-causing oligosaccharides stachyose and raffinose in preference to sucrose, and hydrolyzes galactosyl compounds.

Talk with Brian Quigley of Canada. 1990. March 15. These bacteria are found in the large/lower intestine of newborn infants, but they gradually disappear a few months after birth. If these bacteria are ingested by adults, they supposedly go into the digestive tract, where they survive and kill bad bacteria. By eating a food containing these bacteria, an adult is replenishing his/her digestive tract with a bacteria found there at birth but lost. Some studies ascribe amazing benefits (anti-carcinogen, etc.) to this organism. Chris Hansen's Lab. in Milwaukee, Wisconsin, has done extensive work on this organism in Europe and the USA. They have worked with Yoplait in France and other companies to develop good strains. Products now containing the bacterium are often labeled "BA" or "Bifido Active." In Japan, the bacteria are sold in pill form. Researchers at Laval University in Quebec, Canada, have also done considerable research on these bacteria.

*Bergey's Manual of Systematic Bacteriology* (1984) lists 32 species of *Bifidobacterium,* including the species *bifidum* and *breve* (p. 1424). "Distinction of two serovars have been made. Serovar A predominates in the feces of human adults, while B predominates in that of neonates (Reuter 1963)."

A search for the term "Bifidobacterium" the MEDLINE database from 1986 to the present lists 78 publications.

1932. *Agri-Book Magazine (Exeter, ONT, Canada).*1990. Beans in Canada. 16(5):1-36. March.
• ***Summary:*** This entire issue is about soybeans in Canada, with emphasis on soybean production. Articles include: Reviewing ridge tillage. Grading by oil and protein content. Soybeans submit to taste test (by Japanese tofu buyers). The Quebec bean comeback. Weed control in soybeans. Takeya Miso Co. Soybean cyst nematode. Soybean breeding.

1933. Ontario Soybean Growers' Marketing Board. 1990. A profile of the Canadian soyfoods market–Characteristics and potential. Box 1199, Chatham, ONT N7M 5L8, Canada. vi + 40 p. March. 28 cm. Spiral bound.
• ***Summary:*** Contents: 1. Introduction: Background, study objectives. 2. Research procedures: Data limitations, data collection (data sources). 3. The soyfood market: Soyfood production and utilization, domestic production, imports and exports (introduction, whole soybeans, soy flours and meals, soy oil, soy sauce, protein substances, cream and other substances, bran & soy hulls, soy meal oil cake), balance, conclusions regarding opportunities.

4. Soybeans for food purposes: Natto beans (background, market characteristics, market potential), whole bean soyfoods (introduction, soynuts, full fatted soy flours, soymilk, tofu, soy sprouts, tempeh, miso, natto, soy sauce), foods from soy ingredients (introduction, defatted soy flakes, soy protein concentrate, soy protein isolates, textured soy protein, consumption and imports). 5. Organic soyfoods: Introduction, organizations (major players, labelling requirements, certification), organic soybeans, organic soyfoods, market opportunities, recommendations.

6. Market estimates: Introduction, conversion rates, market characteristics (introduction, ethnic characteristics, immigration trends, implications), soyfood consumption (production). 7. Soyfood products: Introduction, new products (whole bean products, products from soy components), existing products (products with potential for growth). 8. Marketing strategy: Introduction, respondent requests (background), market opportunities (traditional soyfoods, new products), systems development (system information needs, human resources, production research), institutional needs.

This study was commissioned by the Ontario Soybean Growers' Marketing Board to provide a description of the Ontario soyfood industry. "Production and utilization: In the 1988 crop year, approximately 1.12 million tonnes of soybeans were produced on 1.28 million acres in Ontario. Approximately 86% of the soybeans were sold through the Board, with the remainder being fed or retained on the farms where they were grown. In 1988, 860 thousand tonnes of soybeans were crushed in Canada to produce soybean meal and soy oil, and 272 thousand tonnes were exported.

"Imports and Exports: Canada had a negative balance, a deficit, of almost $190 million in the value of soybeans and soy products traded. This is just over half a million dollars per day. Our largest single area of exports is whole soybeans for human foods. The percentage of these beans going to the major markets in 1988 were: USA, 37%; Pacific Rim Countries, 34%; and Europe and other 29%. Our greatest imbalance in exports and imports is in soybean meal or oil cake. Canadian crushers are unable to maximize their sales of oil cake because of difficulties in selling surplus soybean oil in the US. Soy oil being sold into the US presently faces a tariff of 18% which is decreasing at the rate of 2.25% per year as per the Canada United States Trade Agreement...

"Institutional development: We suggest the Board initiate the establishment of a Soyfood Development Association similar in structure and function to the Canola Council of Canada... There is a need to begin to bring all industry stakeholders together to systematically identify problems, information and research needs; develop data bases; and cooperatively promote the soyfood industry."

Soybeans for food purposes: The total volume of soybeans consumed as soyfoods in Vancouver (BC), Toronto (Ontario), and Montreal (Quebec) was estimated at about 6,000 tonnes, and imports were estimated to be equivalent to 8,000 tonnes of soyfoods.

Miso: One large Vancouver producer and one Toronto producer estimated that the volume of soybeans used to make miso in Canada is only about 35 tonnes/year.

Modern Soy Protein Products: Soy flour, concentrates, isolates, and textured soy protein products. Roughly 2,400 tonnes of soybeans are used in Canada for the production of these products, and 5,600 tonnes of soybeans are used to make the imported products (only bakery flour and extruded flour are made in Canada). Almost 1,000 tonnes of soy protein concentrates and isolates, and 400 texture soy proteins were imported, 83% from the USA. Total exports were 800 tonnes, of which 578 tonnes went to the USA. Soy flour (full-fat): The term "flour" generally signifies that the material has been ground finely enough to pass through a 100-mesh screen. Only relatively small volumes of full-fat soy flours are used directly as human foods. Some are used in bread, crackers, and pastry products. 5 companies in Canada make 1,538 tonnes of soy flour worth $495,000.

Natto: Canadians sells roughly 8 to 10 thousand tonnes of natto beans in Japan each year. Natto-type beans are "created by screening out the small beans from among regular food grade soybeans which have white hilums" (p. 15). In Japan about 100,000 tons/year of soybeans are used to make natto. Recently, Canada (via 3 companies–First Line Seeds, W.G. Thompson, and King Grain) has supplied about 10% of this market. Ontario produces about 8,000 to 10,000 tonnes of natto beans. Competition is expected to increase from U.S. seed breeders.

Soymilk: There are presently no large Canadian soymilk manufacturers. A plant is being built by an international trading company near Vancouver (YHS Pacific Fruit Concentrates Ltd., owned by Yeo Hiap Seng). It will supply both the local market and the Western U.S. market when it goes on stream later this year. A high proportion of imported soymilk is organic. Two brands account for 3/4 of all imports: Edensoy and Vitasoy. A high proportion of all soymilk imports are certified organic. This emphasis makes it difficult for Canadian producers to compete because of the shortage of organic soybeans in Canada. Consumption of soymilk is increasing at about 10% a year. Prices range from $1.50 to $2.75 per liter, with the organic product commanding the higher prices. Just under 100 tonnes of soybeans are used to produce soymilk in Canada: Vancouver 42 tonnes, Toronto 30 tonnes, Montreal 25 tonnes, plus imports 240 tonnes. 1 kg of soybeans produces 16.5 kg of soymilk.

Soynuts: The volume of soynuts made in Canada is quite small. One Toronto company [Grove Country Foods Canada, Inc.; they were in business 1-2 years, but were out of business by Jan. 1991], which began operation in Nov. 1988, sells a line of roasted nuts, which are roasted in the USA and chocolate-dipped in Ontario. Production was only a few tonnes in 1989 and is estimated to be about 10 tonnes in 1990.

Soy sauce: In 1986, according to Statistics Canada data, 2,503 tonnes of soy sauce were produced by 6 firms. The value was $2,161 per tonne for a total of $5,411,000. In 1988 Canada imported 5,680 tonnes of soy sauce valued at $4 million, primarily from China, the United States, Hong Kong, and Japan. Exports were 58 tonnes valued at $65,000. The major Canadian producers are China Lily and Sun Fresh in Toronto, Wong Wing and VH in Montreal, and Golden Dragon in Vancouver. The value of Toronto production is currently estimated to be about $5 million.

Soy sprouts: One Toronto manufacturer uses 20-25 tonnes of soybeans per year.

Tofu: About 3,300 tonnes of soybeans are used to produce tofu in Canada, more than any other soyfood. The volume of soybeans used is estimated at 1,400 tonnes in Toronto, 1,200 tonnes in Quebec (when a relatively large operation in Hull [La Soyarie, Inc.], near Ottawa, which exports to Ontario is included), 625-700 tonnes in Vancouver, and 125 tonnes for imported tofu. 1 kg of soybeans produces 2.4 kg of tofu.

Tempeh: Only about 33 tonnes of soybeans are used to make tempeh in Canada, and an estimated 15-20 tonnes in Ontario. Imports are relatively small. 1 kg of soybeans produces 1.6 kg of tempeh. Very few firms produce tempeh in Canada. One producer claims to have over half the Ontario market. A major distributor suggested they sold 4-5 times as much tofu as tempeh.

Soybean crushing: Since 1986 the number of firms crushing soybeans and producing soy oil has decreased from 3 to 2 [Central Soya owns two plants; in 1990 they bought the Canadian Vegetable Oil Processing (CVOP) plant in Hamilton, Ontario, formerly owned by Canada Packers Inc. They purchased Victory Soya Mills in Toronto in early 1985. So now 2 firms own 3 plants]. In 1986 the three plants made 95,108 tonnes of crude soy oil worth $57,271,000. Two firms made deodorized soy oil, but the volume and value were confidential. Less than $2 million of any type of soy oil is imported.

Consumption of soyfoods in Canada is strongly linked to Asian-Canadians. A table (p. 32) shows that according to the 1986 census, there were about 444,000 people of East- and Southeast Asian origin living in three major Canadian cities: Vancouver (155,105 people comprised 11.2% of the city's population), Toronto (234,325 people comprised 6.8%), and Montreal (55,585 people comprised 2.4%). Thus Toronto was by far the largest market, but Vancouver had the highest density of Asian-Canadians. A similar table (p. 33) updates the previous table to 1988. Immigration has increased sharply since then.

Note: This is the earliest document seen (Feb. 2002) that uses the term "food grade" (or "food-grade") in connection with Canadian soybeans (see p. 15). Address: Chatham, ONT, Canada.

1934. *Soyanews (Sri Lanka).*1990. Soya workshop. 12(1):3. Jan.
• ***Summary:*** "A workshop was held by 'Plenty Canada' at Rochdale Hall, Multi-Purpose Cooperative Society Building in Kandy on March 19th 1990 for Soya entrepreneurs in the Soya field. 115 Soya processing entrepreneurs participated.

"The opening ceremony was graced by the Field Director, Plenty Canada Mr. P. Dudding. The inaugural speech was made by Dr. M. Sikurajapathy, Co-ordinator Soyabean Food Research Centre, Gannoruwa... The entrepreneurs displayed their varieties of soya food preparations and dishes... Participants were very happy to have gathered informations, that are useful in their small scale business and self employments.

"All participants were treated generously by Plenty Canada with varieties of Soya delicacies, Soya milk and a sumptuous lunch finished with delicious soy ice cream."

Next to this article, and continued on the next page, is a listing of "soya products sales outlets," with their addresses. In Kandy, there are 29 soya distributors and retailers (all co-ops), and 2 super markets. There are also 27 other private outlets (no co-ops), mostly in Kandy. These include: Jane Soya Products (Anniwatta, Kandy); Dharshana Soya Products (Halloluwa, Kandy); 2 Soya Sales Outlets (one at 44 Main St., Osupensala, Mawanella, and one at Henawella, Kadugannawa). In Colombo, there are 8 super markets and 4 private outlets.

1935. Gupta, Rajendra P.; Gupta, Rashmi R. Assignors to Prosoya Corp. (Maryland Heights, Missouri). 1990. Food processing in oxygen-free environment. *U.S. Patent* 4,915,972. April 10. 5 p. Application filed 29 March 1989. [3 ref]
Address: [Raj Gupta, ProSoya Foods International Inc., 801-275 Slater Ave.], Ottawa, ONT, K1P 5H9, Canada. Phone: 613-745-9115 or 613-744-4401.

1936. Caplan, Frieda. 1990. Selling tofu at Frieda's Finest, and maintaining good, fresh quality (Interview). *SoyaScan Notes.* April 17. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Frieda founded this company in 1962. She used to be president but Karen Caplan, her daughter (age 35) is now president. The original company name was Frieda's Specialties Inc. They added Frieda's Finest to the name in about 1976-77. The company carries "The highest quality selection of exotic produce and the most incredible edibles." She started selling tofu under the manufacturer's label in Jan. 1977 for a Chinese New Year promotion to see if the product would sell (she does not recall who the manufacturer was). Bill Mizono of Azumaya introduced her to Hinode Tofu Co. and Mr. Yamauchi. On 26 June 1977 she began to sell firm tofu under the Frieda's Finest label. It was made by Hinoichi in Los Angeles. "Hinoichi is the most wonderful company to work with. They have great integrity. We are their only account where they pay for all the film and all the packaging. I think we're now their biggest customer." In 1983 the brand was changed from Frieda's Finest to Frieda of California. Since 1979 tofu has been one of Frieda's best-selling products, and has been in the top 6 since 1982.

As part of Frieda's Consumer Program, there are recipes on each package, and the consumer is invited to write in for more recipes and information. The firm tofu has different recipes from the soft. The latter was just introduced this week. Bess Petlak is the consumer relations specialist. They get a great many letters about tofu, with a surprising percentage coming from first-time users. About 90% of these are requesting more recipes and compliments. The company has two product lines that contain tofu: The Slim Line (low calorie) and the Foods of the Oriental Line. There is a recipe brochure for each product line. The Slim Line Vegetable Guide (1987) defines tofu but does not give a recipe.

Frieda's has a program to keep tofu stored at low temperatures. First, the tofu is pasteurized and quickly cooled by the manufacturer, then all of it is packed in crushed ice in waxed cardboard boxes. On each case carton is written "Tofu. Pasteurized–Perishable. 12/19 oz. tubs. This side up. Keep at 32º-35ºF. Do not freeze. Keep refrigerated."

Hinoichi delivers daily within 30 minutes after the tofu is made and they are located right around the corner. In hot weather, Frieda adds more ice. Frieda ships all tofu in refrigerated trucks, and retailers are advised to keep it as cold as possible without freezing it. "Much of our tofu is sold on a bed of ice. They ice all the cut melons. There isn't a department that doesn't have an icing machine. Since Jan. 1977 we have never issued one credit in all these years on quality" (i.e. has had no problems with poor tofu quality) "except for one air shipment to Hawaii when 3 of the film lids came off. Each individual package lid says, 'Change water daily. Keep refrigerated.'

"I am so mad at Morinaga for the negative publicity for tofu they are putting out. This is the most destructive thing that has ever happened to the tofu industry. For me, it was totally shameful. I've never seen anything like this in the produce business in all these years–never! Its very demeaning and insulting. Like one lettuce grower criticizing another who uses pesticides. You build an industry by positives, not by negatives. If everybody does well, they'll do well. I've confronted Art Mio on these statements he's making. In addition he feels that the Maine ban on aseptic

cartons only applies to milk, not to his tofu. But industry people disagree with him." The rise of Mori-Nu aseptic tofu has not cut into her market for fresh tofu at all, but it has created a new market for aseptic soft tofu. To respond to this, Frieda is launching a fresh soft tofu this week.

In 1978 tofu was #40 on the company's list of the top 40 best-sellers. It rose to #12 in 1979, #8 in 1980, #7 in 1981, #4 in 1982, #2 in 1984, #4 in 1986, #3 in 1987, and #4 in 1988 (kiwi fruit, pearl onions, and egg rolls beat it out). Every year, without exception, tofu volume has increased, and it has increased more rapidly in recent years. Frieda's now sells over 300 products.

In 1982 Frieda addressed the Food Writers of America at the FMI and *Better Homes and Gardens*, when Doris Edie was editor, came out with a special diet and exercise edition of the magazine. In the preface it highlighted tofu and told them to buy it in their produce department. Frieda only sells her products in the produce department. Though her tofu is much more expensive than Nasoya's, it sells very well in competition on the Eastern Seaboard, Toronto, etc. People buy for quality not for price, and they buy the Frieda Line and the program–with the guaranteed refund for any returns. Address: Founder, Frieda's Finest / Produce Specialties Inc., P.O. Box 58488, Los Angeles, California 90058. Phone: 213-627-2981.

1937. Shimizu, Teruo. 1990. Recent developments at Miyako Oriental Foods (Interview). *SoyaScan Notes.* April 17. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Miyako is presently making about 900 metric tons/year of miso, making them the largest miso manufacturer in America. This is up 30% compared with three years ago (when the dollar/yen exchange rate changed dramatically), but there has not been much increase during the past 2 years. About 80% of sales are to the Asian-American market (including small exports to Japanese in Mexico), and 20% to the natural foods market. Westbrae, a former customer, is now buying their miso from Canada. They are now trying to increase their sales to the Korean-American market. The younger generation of Korean-Americans finds the flavor of Korean miso to be too strong. They (and some Korean restaurants) like to mix equal parts of Miyako rice miso with Korean miso. Some Korean restaurants have switched to using only Japanese miso. One reason is that the quality of Korean miso is inconsistent.

They are selling quite a bit of dry koji to Grainaissance and to Cedarlane, both of whom use it to make amazake. Two years ago Miyako purchased an expensive, automatic, computer-controlled rotary koji fermenter from Nagata Brewery Machinery Co. (the biggest company; they also sold such a machine to Takara USA, the sake maker). It is working very well for them. The only other manufacturer of such fermenters is Fujiwara in Okayama. Address: Vice President, Miyako Oriental Foods Inc., 4287 Puente Ave., Baldwin Park, California 91706. Phone: 818-962-9633.

1938. Toronto Star. 1990. Next week in the Star: The future of food–Wednesday (Ad). *Toronto Star (Ontario, Canada).* April 28. p. E37.
• ***Summary:*** "Set your cooking appliances to the 21st century as Marion Kane presents a futuristic look at some new-age recipes. From tempting tempeh to fabulous fajitas, you'll discover how to be environmentally friendly and health conscious without giving up any good, old-fashioned flavor. The food section lands Wednesday."

1939. Inforesults Ltd. 1990. Canadian soyfood directory. Brampton, Ontario, Canada. 22 p. April 6. 28 cm.
• ***Summary:*** This directory, prepared for the Ontario Soybean Growers' Marketing Board (P.O. Box 1199, Chatham, Ontario, Canada N7M 5L8), lists individuals and organizations involved in the production of soybeans and soyfoods in Canada. The majority of listings are for commercial firms. The directory includes the name of the firm or individual, address, postal code, phone number, contact person, activities (any of 10 types, such as manufacturer, exporter, importer), products (any of 18 types, including soymilk, tofu, soybeans, or services), and whether or not the products are claimed to be organic. The various listings are sorted by province, and within province by company name. Address: Information Research Consultants, Suite 204, The Mill, 60 Queen St., East Brampton, ONT L6V 1A9 Canada. Phone: (416) 453-1174.

1940. Bagley, Hannah. 1990. Re: Recollections of soynut butter in Canada during World War II. Letter to Claire & Jim Wickens of Lafayette, California, May 6. 2 p.
• ***Summary:*** During the war she lived on Vancouver Island in Canada and was unable to get peanut butter; she doesn't know if it was also unavailable in the rest of Canada. It was called "Soya Bean Butter." She bought it in a small country store. It came in a small jar or a can like jam. The label was plain brown, stuck to the can, with a picture of a soybean on it. The product was about the same price as peanut butter. She has not seen the product for years.

Note: This is the earliest English-language document seen (April 2005) that uses the term "Soya Bean Butter" to refer to soynut butter. Address: 142 Howard Ave., Nanaimo, BC, V9R 3R1, Canada.

1941. Leggott, Merton. 1990. Flakee Mills Infranizer uses new electronic process for infrared processing of seeds, including soybeans for foods and feeds (Interview). *SoyaScan Notes.* June 21. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Mr. Leggott of Flakee Mills in Lincoln, Nebraska, developed this new machine and several new

processes and began to market the machine in about May 1989. The new process is called infranizing. His machines are now in operation in the USA, Canada, and Europe, and some are used to process soybeans, especially for textured livestock feeds. He has patents pending on both the process and the equipment. He feels that his equipment is much more efficient than an extruder to make livestock feeds from whole (full-fat) soybeans. He can also increase the capacity of an extruder by placing his machine upstream from it. He feels that his machine makes a product that is far superior to an extruded product in terms of nutritional value and palatability, etc. Much of the problem with extrusion is the cost of maintenance on the extruder. Any time you use heat you are using infrared radiation. One old process used gas (propane or natural gas) as the energy source. His source is electric, but both give infrared energy, as does the sun. The key to his process is the intensities/wave lengths of infrared that he is working with. His process cooks the product from the inside out. Rick Williams is his sales manager. Address: Owner, Flakee Mills Inc., 4343 N.W. 38th St., Lincoln, Nebraska 68524. Phone: 402-470-2188.

1942. *Soya International (Bar Harbor, Maine).*1990. Yves Tofu Wieners up to bat at Candlestick Park. April/June. p. 3. • ***Summary:*** This product, made by Yves Fine Foods of Vancouver, BC, Canada, will be served at San Francisco Giants baseball games in Candlestick Park, San Francisco, this year, in a new eggless variety and a larger ballpark size. This will be the second year that meatless tofu hot dogs have been available along with meat hot dogs at concession stands in the stadium.

1943. **Product Name:** Yeo's Soy Bean Drink.
**Manufacturer's Name:** YHS Pacific Fruit Concentrates Ltd. (Yeo Hiap Seng).
**Manufacturer's Address:** 11880 Machrina Way, Richmond (near Vancouver), BC, V7A 4V1, Canada. Phone: 604-277-7707.
**Date of Introduction:** 1990. June.
**Wt/Vol., Packaging, Price:** Can.
**New Product–Documentation:** Ontario Soybean Growers' Marketing Board (OSGMB). 1990. "A profile of the Canadian soyfood market–Characteristics and potential." March. p. ii, 19. "A [soymilk] plant is being established near Vancouver, BC, which will supply both that and the Western U.S. market." The plant "is being built by an international trading company." Talk with Fred Brandenburg of the OSGMB. 1991. Jan. 23. This plan is run by Yeo Hiap Seng. It opened in March 1990, and he attended the gala opening; they had the press there, a print packet, news releases, and the whole works. The plant is quite impressive and definitely state-of-the-art. They only have one line right now, making soymilk in cans. They bought a bankrupt co-op that was already making fruit juices. In early Oct. 1990 the *Vancouver Sun* and *The Province* (from Vancouver) both ran stories on the company.

Talk with Wimsey Lam of YHS. 1991. Jan. 29. The company started producing canned soy bean milk in June 1990. They presently have only one soy product.

1944. **Product Name:** Tofu Garden Patties [With Garden Vegetables or With Mushrooms and Soya Cheddar Cheese].
**Manufacturer's Name:** Yves Fine Foods Inc.
**Manufacturer's Address:** 1138 East Georgia Street, Vancouver V6A 2A8, B.C., Canada. Phone: 604-251-1345.
**Date of Introduction:** 1990. June.
**Ingredients:** With Garden Vegetables: Tofu, (water, organic soybeans, magnesium chloride), stone ground whole wheat flour, gluten, fresh carrots, green peppers, celery, onions, crushed tomato, soy grits, garlic powder, seasonings, rice syrup solids.
**Wt/Vol., Packaging, Price:** 6 oz package. Retails for $1.99 (7/90).
**New Product–Documentation:** Soya International. 1990. April/June. p. 22. The ingredients for Tofu Garden Patties with Mushrooms and Soya Cheddar Cheese are: Tofu, soya cheese (tofu, soy oil, casein, salt, citric acid, lecithin, natural flavor, guar gum, annatto seed), stone ground whole wheat flour, gluten, mushrooms, soy grits, garlic powder, seasonings, rice syrup solids. Contact: Yves Potvin.

Spot in Health Foods Business. 1991. Jan. p. 76. "The burgers are made with either fresh vegetables and spices, or with mushrooms and soya cheddar cheese."

1945. **Product Name:** Yves Veggie Tofu Wieners.
**Manufacturer's Name:** Yves Fine Foods Inc.
**Manufacturer's Address:** 1138 East Georgia Street, Vancouver V6A 2A8, B.C., Canada. Phone: 604-251-1345.
**Date of Introduction:** 1990. June.
**Ingredients:** Tofu (water, organic soybeans, magnesium chloride), soy protein, canola oil, wheat gluten, unmodified wheat starch, natural smoke flavors, beet powder (coloring), paprika (coloring), tamari sauce, spices, guar gum.
**Wt/Vol., Packaging, Price:** 10 oz package. Retails for $2.19 (7/90). 12 oz vacuum pack retails for $3.29 (6/92, California).
**New Product–Documentation:** Soya International. 1990. April/June. p. 22. Contact: Yves Potvin. Spot in Health Foods Business. 1991. Jan. p. 76. Shows a small black-and-white photo of the package.

Ad (color, 2/3 page) in *Natural Foods Merchandiser.* 1992. April. p. 94. "Yves Veggie Cuisine." Shows packages of Veggie Wieners and Burger Burgers.

Product with Label purchased at Open Sesame in Lafayette, California. 1992. June. 3.5 by 10 inches. Vacuum pack. Red, yellow, blue-green, and black on white. Color photo of a wiener with trimmings in a bun. "Contains no meat. Cholesterol free. Made with 100% organic soybeans.

No preservatives. Low in saturated fat. Since 1985 we have been committed to providing you with the highest quality in healthy, easy to prepare entrées. Always cholesterol and preservative free..." The company name is now Yves Veggie Cuisine Inc. The president is Yves Potvin.

1946. Hsiao, Laurence. 1990. Role of Taiwan soybean importers. In: Ontario Ministry of Agriculture and Food, ed. 1990. Soybean Buyers Mission from New Markets, July 1-7, 1990. Tokyo, Japan: Ontario Ministry of Agriculture and Food. 61 p. July. See p. 13-15. [Eng]

• ***Summary:*** In Taiwan, soybeans are imported primarily from the USA. During the days of the Soybean Importers Joint Committee (SIJC) other countries producing soybeans complained that the Taiwanese market was, in effect, closed. However since soybean import liberalization on 1 July 1988, the SIJC was abandoned, yet almost all soybeans are still imported from the USA.

While SIJC was active, each importer declared his requirement based on import volume the preceding year plus or minus 10%. Then the Committee reported to the Government Authority, which invited tenders from suppliers. Because soyfood manufacturers had to rely on soybean oil millers for their supply, the quality was greatly restricted. Hence Taiwanese consumers did not enjoy the high quality of tofu and soymilk found in other countries.

Although soybean imports are bound by the "Sino-America Grains Agreement," which requires that Taiwan purchase at least 1.2 million tonnes/year of soybeans from the USA, the importers now have more flexibility in dealing with the suppliers. Thus the market is now more price-oriented. But food soybeans are still imported in the same way. Hence, soyfood manufacturers still complain about their poor quality.

Preliminary research has shown that the yield of tofu from Ontario special quality white hilum soybeans is 15% higher than from U.S. #2 soybeans. In Taiwan, most food soybeans are sold in 50 kg bags in small lots of 10-25 tonnes/lot. The author advises Ontario suppliers to promote their soybeans on the basis of yield and quality, and to try to build these factors into their price structure. In conclusion, in Taiwan the market for food soybeans is undeveloped. The time is ripe for Canadian soybean exporters to penetrate this market. "Initially you may find that price is a major factor. Do not be discouraged."

Addendum: The following documents are available from the Ontario Soybean Growers' Marketing Board: 1. Sino-America Grains Procurement Agreement. 2. Bulk Carrier Charter Agreement. 3. Soybean Importers Joint Committee Tender Invitation. 4. Chronology of 1988 Soybean Shipments to Taiwan. 5. Sales Agreement of Paraguayan Soybeans. Address: Vice President, Sun Ford Conglomerate Corp., 21 Lin 1 Street, Taipei, Taiwan. Phone: (02) 321-1005.

1947. Loh, Michael. 1990. An overview of export opportunities in the new markets. In: Ontario Ministry of Agriculture and Food, ed. 1990. Soybean Buyers Mission from New Markets, July 1-7, 1990. Tokyo, Japan: Ontario Ministry of Agriculture and Food. 61 p. July. See p. 10-12. [Eng]

• ***Summary:*** It has been almost 20 years since the first container load of soybeans grown in Ontario was shipped to Japan. By the end of 1989, Ontario was exporting more than $25 million worth of soybeans to Japan, Hong Kong, Malaysia, and Singapore. Now the new markets for Ontario soybeans are Korea, Taiwan, the Philippines, and Indonesia.

In Korea, trade restrictions have eased on soybeans and other agricultural products. With hefty trade surpluses, Korea is under pressure to balance trade. Korea soybean imports jumped from only 428,000 tons in 1979 to 1,100,000 tons in 1989. About 120,000 tons of the imported soybeans are for food use, as follows: Tofu 100,000 tons (83% of the total), soymilk 17,000 tons, and soy sprouts 2,000 tons. Nearly all of Korea's soybean imports come from the USA.

Taiwan ranks second, after Japan, in terms of best prospects for agricultural exports. The strong Taiwanese currency has made exports less expensive. Burgeoning trade surpluses have led to increasing pressures from trading partners, like the USA, to balance trade. So Taiwan has liberalized imports by lowering tariffs and eliminating non-tariff barriers. "U.S. soybean exporters took advantage of their dominant market position in Taiwan to expand sales. Backed by aggressive trade negotiators, the American soybean industry has enhanced its competitive position by securing a 5-year supply agreement contract with the Government of Taiwan. The agreement calls for the purchase of 5.7 million tons of U.S. soybeans over a five-year period from July 1, 1986 to June 30, 1991. As a result the United States has over 75% of the market share. Taiwan's annual requirements of food soybeans are estimated at 250,000–300,000 tons. With recent market opening measures announced by the Taiwanese government, direct sales of food soybeans to end-users are now permitted."

Philippines: In Feb. 1987 Michael led a mission to the Philippines, and contacted a buyer. Ontario soybeans were first shipped to that country later in 1987. The Philippines import about 10,000 to 15,000 tons/year of soybeans for food use, and this is expected to increase in the near future. Filipro, Inc., which is the Philippines' licensee for Nestle S.A., reported increasing market acceptance of its re-launched powdered soya milk product Vita (chocolate flavor), and a soy-based baby cereal named Ceresoy.

Indonesia: Ontario soybeans (worth $4.2 million) were first sold to Indonesia in 1980 after Canada's first mission there that year. 90% of the 1.7 to 2.0 million tons of

soybeans required by Indonesia are used for food. Tempeh is a delicious Indonesian food and Indonesia requires over 750,000 tons/year of soybeans to make tempeh. Address: Senior Representative, Asia/Pacific Region, Ontario Ministry of Agriculture and Food (OMAF), Tokyo, Japan.

1948. Ontario Ministry of Agriculture and Food. 1990. Soybean buyers mission from new markets, July 1-7, 1990. Tokyo, Japan: Ontario Ministry of Agriculture and Food. 61 p. 30 cm. Saddle stitched. [Eng]
• ***Summary:*** This conference took place in Ontario, Canada. On the mission were two buyers each from Indonesia (P.T. Indofood Interna Corp., BULOG), Philippines (Universal Robina Corp., Paritas Trading Corp.), and Taiwan (Sun Ford Mfg. Corp, Great Wall Enterprise Co.). Michael Loh of OMAF/Tokyo was the mission leader. Contents: Background and purpose. Mission members. Itinerary. Seminar agenda. Canada's soybean industry, by Fred Brandenburg of OSGMB. An overview of export opportunities in the new markets (Korea, Taiwan, Philippines, Indonesia), by Michael Loh of OMAF, Tokyo. Role of Taiwan Soybean Importers, by Laurence Hsiao of Sun Ford Conglomerate Corp. Soybean market in Indonesia, by A. Saifullah of BULOG, Indonesia. The market prospective for tempeh in the year 2000, by Ms. Susani K. Karta, manager, P.T. Indofood Interna Corp. (Indonesia). Appendix: 1. Ontario soybean suppliers (directory of 15 exporters). 2. Useful contacts. 3. Ontario soybean oil crushers (ADM, Victory Soya Mills, Central Soya of Canada). 4. Role of the Ontario Soybean Growers' Marketing Board. 5. Development of soybean varieties (incl. Harovinton for tofu, Canatto, Nattawa, and Nattosan for natto). 6. Market trends in the development of traditional soyfood, by Susani K. Karta (ASA, Singapore; Originally presented at the ASEAN Food Conference, Oct. 1988, Bangkok, Thailand). 7. Reference materials for doing business in Asia/Pacific. Address: Tokyo, Japan.

1949. *Contact (Plenty Canada).*1990. Soy Center visit [Guatemala]. 1(1):7. Summer.
• ***Summary:*** "Mark Dolgen, director of CIDA's (Canadian International Development Agency) division for non-governmental organizations, visited Plenty's Guatemala project in early May." A new tree nursery, to be used for reforestation, is now fully operational.

On the same page is a perceptive letter concerning work with indigenous peoples from executive director Lawrence McDermott. Address: R.R. #3, Lanark, ONT, K0G 9Z9, Canada. Phone: (613) 278-2215.

1950. Lim, B.T.; deMan, J.M.; deMan, L.; Buzzell, R.I. 1990. Yield and quality of tofu as affected by soybean and soymilk characteristics. Calcium sulfate coagulant. *J. of Food Science* 55(4):1088-92, 1111. July/Aug. 4 tables. [31 ref]
• ***Summary:*** New varieties of soybeans are compared. Variations in the coagulation of tofu and the quality of soymilk are studied as a function of the soybean composition. Two models are proposed for predicting the tofu yield. Address: 1-2. Dep. of Food Science, Univ. of Guelph, Guelph, Ontario N1G 2W1; 3. DeMan Food Technology Services Inc., Guelph, Ontario N1H 6B5; 4. Agriculture Canada Research Station, Harrow, Ontario N0R 1G0. All: Canada.

1951. Ontario Soybean Growers' Marketing Board. 1990. Soybeans: Food of the future (Leaflet). Chatham, Ontario, Canada. 6 panels. Aug. 22 cm.
• ***Summary:*** Contains a good, brief history of soybeans in Canada. Address: Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

1952. Sand, Avraham. 1990. Pioneering soyfoods and natural foods in Israel (Interview). *SoyaScan Notes.* Sept. 9. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Avraham first went to Israel in 1975 and stayed for about a year. During this time he and Avraham Leider and one other person founded Israel's first natural foods company, named Amud Ha Shachar (Pillar of Dawn) and located in Jerusalem. The first product they made was granola, followed by whole wheat flour, bulgur wheat, brown rice (which they packaged), and date bars. With this company established, a number of Americans and other westerners who had recently immigrated to Israel and were connected with the company approached the Sachnut, the Jewish government agency which helps finance Jewish cooperative settlements. They asked to be given a moshav. A moshav is like a kibbutz (a cooperative agrarian, rural settlement) except that the families have their own homes and land, and the children live at home. In 1976 the Sachnut gave the group a piece of land, infested with scorpions, upon which nine other groups had tried and failed since 1948 to establish a successful community. The Sachnut also financed a small natural foods factory and bakery on the moshav, complete with an oven and a packaging machine. The moshav was named Moshav Me'or Modi'im, located at Doar Na Hamercaz, in the Judean Hills between Jerusalem an Tel Aviv, Israel.

Avraham returned to North America for several years. While living in a community of 5-6 people in Nova Scotia, Canada, he was introduced to tofu by people who made tofu for the community, but he did not make tofu there himself.

Between 1975 and 1990 Avraham has spent a total of 8 years in Israel. The rest of the time he was in the USA or Canada or travelling. Avraham returned to the moshav in 1978 and that year he established Israel's earliest known tofu shop as part of Pillar of Dawn. The tofu was made in

the same bakery room as the granola, especially in the evenings when the granola wasn't being made. Originally the community scale shop was established solely to make tofu for the 25 or so families living on the Moshav. Tofu production was small, averaging 50 lb/day of tofu one day a week, using a Corona mill grinder powered by a washing machine motor. The tofu was curded using bittern (nigari) from a salt factory on the Dead Sea. The Moshav owned the tofu company collectively and financed it. Avraham was the motivating force that got the operation started with temporary help initially from Yaacov Sack and Moshe Reuben. About 3-6 months after tofu production began, they started to make tempeh. Then Ben Zion Solomon joined Avraham 6-12 months after the company started and they worked together like equal partners for several years as the tofu and tempeh makers. Solomon was also making quite a bit of miso on the moshav (with a little help from Sand). They also introduced soymilk. At some point, they began to sell their tofu and miso at a few health food stores in Jerusalem. As far as Avraham knows, his was the first company to make tofu, tempeh, miso, or soymilk in Israel. They developed a 1-page informational pamphlet, written in Hebrew on one side and English on the other, explaining what tofu was and how it was made, plus some recipes. At that time Israelis, other than recent immigrants from America, didn't know what tofu was.

They reached the point where they decided to buy large scale equipment (from Takai) and set up a real commercial shop on the moshav that could produce 500 to 1,000 lb/day of tofu. The Sachnut indicated that they would be willing to help set up this new business. So in about 1979 or 1980 Avraham traveled to the USA and did a lot of study to learn about tofu equipment, products, and processes in small to medium sized shops. He visited about 20 tofu shops nationwide (most were very open and helpful) and collected information in a notebook. He worked at the Soy Plant in Ann Arbor, Michigan, for approximately a year in about 1980. From time to time he shared information with his father, Ralph Sand, who was doing research on non-dairy cheese and tofu at Anderson Clayton at the time. At the last minute the Sachnut pulled out and decided not to finance the project, so the expansion never took place. They continued to make tofu on a small scale. But the moshav was suffering economically so in about 1981 Avraham and his wife, unable to make a living there, left and returned to the USA. The little soyfoods plant dissolved but shortly thereafter a commercial operation (probably Golden Jerusalem Tofu) started in Jerusalem and the people on the moshav bought their tofu from Jerusalem.

During the time that Avraham made soyfoods in Israel (1978-81) there was a lot happening with soya. There was a man called the "Soya King" ("Hamelech Soya," probably Eliahu Navot) who was famous in Israel as the country's soybean pioneer. Avraham thinks he lived in Herzlia/Herzliyya, just north of Tel Aviv, but he died in about 1979 or 1980 several months before Avraham was able to meet him. Avraham went to his home town and met his widow, who told him a little about her husband's work with soya.

The most popular food use of soybeans in the late 1970s was in textured soy flour (like TVP). These products were made in Israel by 1 or 2 big companies and sold in supermarkets in very stylish packages indicating that the manufacturers were well established. There were several flavors and large amounts were sold. He does not know the name or address of the manufacturer, but he got the feeling that Eliahu Navot had at least helped inspire these products; he may have helped to develop them.

In America, Avraham set up a soy deli named Sand-Munches in Madison, Wisconsin. They bought tofu from Bountiful Bean in Madison and made and sold tofu sandwiches, nori rolls, tofu salad, tempeh salad, various tofu spreads. They sold to health food stores and had a sandwich cart on the campus.

Avraham was in on the soyfoods wave at the very beginning, but after it became more established and mainstream he felt that his work had been done in that area, so he moved into the field of aroma therapy, inhaling aromatic essential oils from herbs, where he has been working for the last 8-9 years. It is a very powerful form of herbal medicine. He has developed several product lines under the Tiferet brand (a term taken from the Tree of Life in the Cabala) which he markets in health food stores in the USA and overseas. Address: 210 Crest Dr., Eugene, Oregon 97405. Phone: 503-344-7019.

1953. Lo, Yvonne. 1990. Recent developments with Vitasoy in Hong Kong and America (Interview). *SoyaScan Notes.* Sept. 10. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Nasoya Foods, Inc. is now a subsidiary (not a division) of Vitasoy (USA) Ltd. Note that Nasoya has changed from a limited partnership to a corporation. The parent company in Hong Kong will soon change its name from Hong Kong Soya Bean Products Co. Ltd. to Vitasoy International Holdings Ltd. They had a hard time choosing between "Vitasoy International" and "Vita International." Choice of the former name may indicate that "there will be a whole new look at the company philosophy." Presently the company produces many non-soy beverages. The labels of all of the company's products made in Hong Kong will have to be reprinted.

Building a soymilk manufacturing plant in America may soon make sense for Vitasoy (USA) Ltd. "It was something we had in mind when we decided to acquire Nasoya."

The parent company has produced a 14-minute color video, The Vitasoy Story, for its 50th anniversary. Part of the company sales kit, it is available in two versions, one

narrated in English and one in Chinese. The film portion of the two is identical.

K.S. Lo's collection of Yixing Chinese teapots is now touring the USA, and he will soon be lecturing on the subject in San Francisco on Sept. 22 at the Chinese Culture Center.

Note: Concerning ownership of Vitasoy (USA) Ltd., This company was originally established by Yvonne and Irene Lo, daughters of K.S. Lo, in San Francisco in Jan. 1989 as The Soya Bean Products Co., N.A. Inc. They immediately began to import Vitasoy from Hong Kong, and to distribute it first in Canada, then after Feb. 1981 to the USA. By mid-1982 they were selling some 3.2 million cartons of Vitasoy in the USA. The venture was so successful that in April 1982, to raise capital and facilitate long-term operations with Hong Kong Soya Bean Products Co. Ltd., Yvonne and Irene sold their company to HKSBPC, which renamed the affiliate Vitasoy USA, Inc. The parent company now began to take a serious interest in the U.S. market. In 1983 U.S. sales of Vitasoy rose 60% to 5 million cartons (328,125 gallons). Address: President, Vitasoy (USA) Ltd., 99 Park Lane, Brisbane, California 94005. Phone: 415-467-8888.

1954. *Soya International (Bar Harbor, Maine).*1990. Bean Machines installs three new systems in North America. July/Sept. p. 3.
• ***Summary:*** San-Francisco based Bean Machines Inc. has recently installed their new continuous tubular cooking systems, used for making tofu and soymilk, in plants at Ann Arbor, Michigan, Duarte, California, and Quebec, Canada. Capacities range from 300 to 900 gallons/hour. Contact Bean Machines at P.O. Box 2122, Mill Valley, CA 94242. Phone: 415-285-9411.

1955. **Product Name:** Soya Nova Soya Sage Rolls.
**Manufacturer's Name:** Soya Nova Tofu Shop.
**Manufacturer's Address:** R.R. #2 Rourke Road, C-28, Ganges, Saltspring Island, BC, V0S 1E0, Canada. Phone: 604-537-9651.
**Date of Introduction:** 1990. September.
**Ingredients:** Incl. okara, tofu, brown rice, fresh onions, garlic, carrots, chili peppers (seasonal), olive oil, safflower oil, herbs and spices.
**How Stored:** Refrigerated.
**New Product–Documentation:** Letter from Greg Lundh of Silverking Soya Foods in Nelson, BC, Canada. 1990. Dec. 14. Soya Nova Tofu Shop introduced this product in Sept. 1990. Labels are not yet available.

Talk with Debbie Lauzon. 1990. Dec. 28. "I now have a really cute little cottage industry. I met a master pastry chef from France named Pascal Pellerin. He worked at Tassajara in California for a while. When I saw that he was unemployed I put him at work in the tofu shop. We came up with some really nice Soyasage Rolls... They use okara and are made in French puff pastry and can be sold frozen. Just bake and serve. The inside has okara, tofu, brown rice, olive oil, herbs, spices, etc."

Leaflet sent by Deborah Lauzon. 1991. Feb. 6. "Soya Nova Tofu Shop." Describes the rolls and lists ingredients.

1956. Ford, Ashley. 1990. Milking the soybean: Asian firm opens drink plant. *Province (The) (or The Vancouver Sun) (Canada).* Oct. 3.
• ***Summary:*** "Yeo Hiap Seng Ltd. of Singapore has been turning Ontario's soybeans into high-protein drinks for over two decades... This week, the company will open a $13-million soybean-juice plant adjoining its juice-concentrate plant in Chilliwack... Chalk the investment up to a victory for the U.S.-Canadian free-trade agreement. Yeo says the agreement, plus the availability of high-quality soybeans, persuaded it to put in a plant at Chilliwack...

"In 1988, the company purchased the adjoining Pacific Fruit & Concentrates Ltd. from the East Chilliwack Co-operative for about $3 million. It is now known as YHS Pacific Fruit Concentrates Ltd. Last year, it also purchased Chun King, the oriental food division of RJR Nabisco, based in Windsor [Ontario, Canada]. The new plant will produce 300 cans a minute of a variety of soybean drinks for the Canadian and U.S. markets. The state-of-the art-factory will create 32 new jobs...

"At the beginning of the century [in 1900], family patriarch Yeo Keng Lian began fermenting and selling soya sauce in Fujian province... Initially, soya sauce provided Yeo's business success. In 1955, the company started producing soybean drinks, and has since gone on to produce other foods."

A photo shows Bill Chia showing off the canning line at Yeo's new soymilk plant. Note: This factory is a major Canadian consumer of soybeans for food/beverage use, but about 90% of the finished soymilk is exported to Asia–especially Singapore. Address: Business Reporter, Canada.

1957. Gupta, Raj. 1990. ProSoya is introducing Soya Cow, a small, low-cost soymilk system for Indian villages (Interview). *SoyaScan Notes.* Oct. 17. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The new Soya Cow unit, which now sells for $2,000 and will eventually (hopefully) sell for $1,000 makes one 20-liter batch of low-beany-flavor soymilk every 30 minutes. The machine grinds the beans, cooks the slurry, and presses out the soymilk. It does not require the use of steam: any fuel can be used. The beans are cooked immersed in water with no air in the vessel, but they are not under a vacuum, since that is too high-tech for villages and developing countries, leading to maintenance problems.

By comparison the Mechanical Cow from Brazil makes 70 liters per batch, but requires the use of steam and costs

$10,000 to $15,000. Address: 627 Gaines Dr., Ottawa, ONT, K1J 7W7, Canada. Phone: 613-744-4401.

1958. AGP–Ag Processing Inc a cooperative. 1990. Annual report: Partners–Working together in food production. 11717 Burt St., Burt Plaza, Suite 200, Omaha, Nebraska 68154-1581. 24 p. 31 cm.
• ***Summary:*** Net sales for 1990 (year ended Aug. 31) were $848.621 million, down 10.4% from $946.707 million in 1989. Earnings before income taxes: $65.200 million, up 40.3% from the $46.483 million in 1989.

AGP "retired all Class B Preferred stock held by Land O'Lakes and Farmland Industries, and issued a cash payout of remaining allocated patronage equities."

Note: Talk with Bell Lester (expert on AGP history) of Omaha, Nebraska. 2007. Nov. 6. The Class B Preferred stock was really money that Land O'Lakes and Farmland Industries invested in AGP on the original day of reorganization in 1983. By retiring or redeeming that preferred stock, AGP is basically paying back that debt. AGP did the same thing with the AGP members–members of the old Boone Valley–who had loaned AGP startup capital and been given an equivalent amount of Class B Preferred stock. In 1982 and 1983, Bill had gone out and raised that money for AGP's capitalization.

AGP also acquired the Lincoln, Nebraska, grain terminal. Stockholders from Utah, New York, Mississippi, and Canada came aboard. The company now has 8 soybean processing plants.

On pages 2-12 is an excellent year by year history of AGP, with good "big picture" context and background information for each year, sidebar quotations, and many color photos including Lindsay, Knobbe, and each member of the board of directors. AGP "was the product of a forced marriage in the uncertain early 1980s." CEO Lindsay says (p. 11): "I started mentioning the word 'profits' when I first came to the company. Back in the old days, cooperatives used the word 'savings.' That word has the connotation that you're not there to try to make money for the company so it can grow and sustain itself. I think cooperatives are now coming to the realization that they have to finance the business they're in. Our most significant accomplishment in the past seven years has been the dramatic improvement in our financial position–going from 135 percent debt to equity [ratio] down to the 20 percent level, paying off the Class A & B preferred stock on which we were originally committed." "At AGP, we never forget that everything we do begins in the field and returns to the farmstead." On the rear cover (for the first time): "Printed with Soy Ink." Address: Omaha, Nebraska.

1959. Business Trend Analysts, Inc. 1990. The market for salad dressings, sauces and condiments. 2171 Jericho Turnpike, Commack, NY 11725. 275 p. Price: $895.
• ***Summary:*** This is an update of the 1988 edition. Sauces include the following table sauces: Ketchup, meat (incl. steak, worcestershire, vegetable, and seafood sauces), barbecue, Mexican (incl. chili, taco, enchilada, etc.), prepared mustard, and soy and teriyaki. Gravies, dips, and dry sauce mixes are not included. Ketchup is the largest segment. Address: Commack, New York.

1960. MacNeil/Lehrer Newshour. 1990. Infant mortality, worldwide and in the United States. Television broadcast. PBS. Oct. 3. *
• ***Summary:*** On average, 40,000 children under the age of 5 die each day worldwide, mostly from preventable illnesses and diseases, and from malnutrition. In America every year some 40,000 babies die before the age of 1. The main cause is low birth weight, but a major cause is maternal drug abuse, especially cocaine and crack cocaine. 30% of the pregnant women in America do not have adequate access to prenatal care. The USA is 20th from the top on a ranking of countries by infant mortality rate. Japan has the world's lowest (i.e. best) infant mortality rate, followed by Sweden, Finland, Switzerland, Canada, Ireland, Netherlands, France, Denmark, and East Germany. Below the USA are Israel and Greece.

1961. ProSoya Foods International Inc. 1990. An affordable soya milk technology: High quality soya milk production equipment for any budget (Leaflet). Ottawa, Ontario, Canada. 1 p. PSF-SC20. Oct.
• ***Summary:*** "ProSoya recently completed the development of equipment capable of making non-beany tasting soya milk in 20 litre batches every 30 minutes. The table top size equipment costing under $3,000 can use almost any source of electricity and heat. It is ideally suited for schools, hospitals, and other institutions, cottage industry, and second generation soymilk and tofu product manufacturers.

"The equipment, dubbed SoyaCow-20, has three components: an air-less grinder, a scraped surface pressure cooker, and a filter press. Steeped soya beans are put in the grinder through a hopper and the machine filled with water. The grinder motor is run for a few minutes and the ground bean slurry is transferred to the cooker by opening a valve. The slurry is cooked at 15 lb per square inch pressure by direct heat from a natural gas, kerosene, coal, or wood stove. The cooked slurry is expelled to the filter press to extract soya milk."

A table compares 4 processes for making soymilk: Cold grind, hot grind, hot blanch, and airless grind. Ten variables are compared, such as processing chemicals, grind (hot/cold), soya milk solids (dissolved/suspended), odour & taste, flavoring. etc. Concerning odour and taste: The cold grind is rancid and cereal, the hot grind is less rancid & cereal, the hot blanch is roasted nut & cereal, and the airless grind is cereal & cereal. Concerning mouth feel: The cold

grind is smooth, the hot grind is chalky, the hot blanch is very chalky, and the airless grind is smooth. Concerning protein yield: The cold grind is 70-90%, the hot grind is 60-80%, the hot blanch is up to 98%, and the airless grind is 70-90%. Concerning basic plant cost: The cold grind is low, the hot grind is medium to very high, the hot blanch is high, and the airless grind is low.

"For more information, contact ProSoya Foods International, Inc. 627 Gaines Drive, Ottawa, Canada K1J 7W7, Telephone 613/745-9115, Fax 613/744-3548, or Raylons Metal Works, Ramkrishna Mandir Marg, J.B. Nagar, Andheri (East), Bombay, India 400 059, Telephone 022/632-3288."

Note: PSF stands for ProSoya Foods. SC20 stands for Soya Cow–20 liters/batch. Address: 627 Gaines Dr., Ottawa, ONT, Canada K1J 7W7.

1962. **Product Name:** Soya Nova Tofu Pumpkin Tarts.
**Manufacturer's Name:** Soya Nova Tofu Shop.
**Manufacturer's Address:** R.R. #2 Rourke Road, C.28, Ganges, Saltspring Island, BC, V0S 1E0, Canada. Phone: 604-537-9651.
**Date of Introduction:** 1990. October.
**Ingredients:** Incl. tofu.
**How Stored:** Refrigerated.
**New Product–Documentation:** Letter from Greg Lundh of Silverking Soya Foods in Nelson, BC, Canada. 1990. Dec. 14. Soya Nova Tofu Shop introduced this product in about Sept. 1990. Labels are not yet available.

Talk with Debbie Lauzon of Soya Nova. 1990. Dec. 28. This product was introduced in about Oct. 1990, as soon as the pumpkins were ready. "I now have a really cute little cottage industry. I met a master pastry chef from France named Pascal Pellerin. He worked at Tassajara in California for a while. When I saw that he was unemployed I put him at work in the tofu shop. We came up with some really nice Soyasage Rolls, then when the pumpkins were ripe, we started making the Pumpkin Tarts. We use only fresh pumpkins, never canned. They sold really well."

1963. YHS Pacific Fruit Concentrates. 1990. YHS Pacific Fruit Concentrates in Chilliwack descendant of 90-year-old family company headquartered in Singapore (News release). Chilliwack, BC, Canada. 2 p. Oct.
• ***Summary:*** Contains a good history of the company. The history up to 1962 is basically the same as that given by Shurtleff & Aoyagi in Feb. 1984. Then it continues: "Throughout the next two decades, Yeo's continued to expand and innovate: this was the first company in the world to pack soya bean drinks in paper tetra-paks using the ultra high temperature process. In addition, the company acquired the franchises for international brands such as Pepsi and 7-Up, Mirinda and Schweppes.

"In 1989, Yeo's purchased Chun King, the oriental division of RJR Nabisco based in Windsor, Ontario, and bought Pacific Fruit & Concentrates Limited located in Chilliwack, B.C.

"Today with associated companies, plants and 4,000 staff members around the globe, and with its products exported to 35 countries, Yeo Hiap Seng Ltd. is still guided by the Yeo family and still adheres to the original formula for success: provide quality products and unite to succeed."

Note: The company's offices and headquarters are in Richmond, B.C. The soymilk plant is located in Chilliwack (population 9,000) about 55 miles to the east, on the south bank of the Fraser River, only about 10 miles north of the U.S.-Canada Border. Address: Chilliwack, BC, Canada. Phone: 604-277-7707.

1964. YHS Pacific Fruit Concentrates. 1990. Fact sheet: YHS Pacific Fruit Concentrates Ltd.: New soya bean drink plant opens (News release). Chilliwack, BC, Canada. 1 p. Plus 2 pages of flow charts. Oct.
• ***Summary:*** "The plant: 80,000 square foot plant on 4.5 acres. Construction and equipment cost: $13 million... Production capacity: 300 cans of soya bean drinks per minute. Employees: 32 full-time. Market: output will go to Canada and the U.S.A. At present, the parent company in Singapore exports the soya bean drink to its North American markets...

"The company: YHS Pacific Fruit Concentrates Ltd. bought from the East Chilliwack Cooperative in 1988 by Yeo Hiap Seng Ltd. of Singapore.

"Yeo Hiap Seng Ltd.: YHS began in 1900 in China manufacturing soya sauce. Canned food production added in the 50s, and in the 70s YHS acquired franchises from Pepsi-Cola International to pack and distribute products. Company now also into prawn farming and Budweiser beer distribution." Address: Chilliwack, BC, Canada. Phone: 604-277-7707.

1965. Raley, Wade. 1990. This Elphin business is full of beans! *Lanark Era (The).* Nov. 12. p. 9, 20.
• ***Summary:*** About the Noble Bean, a tempeh manufacturing company owned and run by Allan and Susan Brown near Elfin, in Ontario, Canada. They make the tempeh in a trailer next to their home.

"'We turn 10 to 12 tons of dry soybeans into 50,000 eight and 10-ounce packages of tempeh annually," said Allan. "We've been getting busier every year since we started the business 11 years ago.'

"A Toronto native, Allan met Susan, who was from Tennessee, in 1969 while he was living in the United States.

"The couple were introduced to tempeh shortly after they became vegetarians in 1970.

"We learned how to make it from other vegetarians, but didn't consider mass producing tempeh until 1979,' said

Allan, who moved to this area in 1976. 'Susan and I started very small; our first shop was a two-bedroom apartment we were renting in McDonald's Corners.'

"A year later, Allan and Susan moved their fledgling business to the famous Kensington market area in Toronto because 'that's where the market for tempeh was.'"

The Browns bought their first equipment from a 60-year-old man [Robert Walker] for $200. They are still using it today. Allan spent the first 5 years distributing his tempeh himself. They started producing 48 pounds a day, but that amount has steadily increased. By 1985 they were making 120 pounds/day. An outside distributor had also begun to introduce Noble Bean products to eastern Canada.

"Today, The Noble Bean is a thriving company. It generated over $50,000 in sales last year and employs two part-time staff, Susan Barrett and Debbi Bova, in addition to Allan and Susan."

"The couple have introduced a secondary product to the market called Casey's Maple Pecan and Honey Walnut Cookies. The all-natural cookies are named after their 11-year-old son. The couple have a second son, Marty, age two."

Allan and Susan made Casey's Cookies in two flavors (Maple Pecan and Honey Walnut) for 1½ years in 1990 and 1991. Ingredients in Maple Pecan: Organic whole wheat flour, pecans, maple syrup, canola oil. Address: Lanark, ONT, Canada.

1966. Baldridge, Don. 1990. Soybean trials and production in Montana (Interview). *SoyaScan Notes.* Nov. 21. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** There are 8 agricultural research centers in Montana. Most of the research on soybeans has been the southern agricultural station, the Huntley research station, east of Billings, Montana. He conducted soybean trials 15 to 20 years ago. He spent 25 years at Huntley. The director of Huntley now is Gil Stallknecht (Phone: 406-348-3400). That station works on agronomy, soils, and livestock and for the past 2 years they have been growing rather large blocks of soybeans to work into livestock rations in their feedlot.

Soybean trials have also been conducted at Sidney in far northeast Montana (contact Dr. Jerald Bergman; phone 406-482-2208. He has been there a long time), and (during the last few years) at Bozeman. They have been in the comparisons on a very limited scale. Each center puts out a progress report each year.

George Cramer, head of Cramer Irrigation & Seed Co. (P.O. Box 432, Hysham, MT 59038) is a seed sales who also raises cattle. He has grown soybeans on a commercial scale for about 10-12 years for use in feeds, mostly in his own feedlot. Some of the varieties being tested originated in Canada; they are early maturing. Yields are low and the crop is not very economical. There are probably no publications advising Montana farmers how to grow soybeans. There may be some statistics on use of soybeans in feeds in Montana. Address: Prof. of Extension Agronomy, Montana State Univ., Bozeman, MT 59717. Phone: 406-994-5688.

1967. Fuller, Catherine. 1990. Success: A tale of eight local business successes. *Shared Vision (Vancouver, British Columbia, Canada).* Nov. No. 27. p. 8-9.
• ***Summary:*** The first success story discussed is Nature's Path, founded by Arran Stephens. Arran was one of thousands of young people who had gone to India during the late 1960s searching for spiritual answers. He wanted to go to the source. He spent 7 months with Sant Kirpal Singh "... who was considered to be, and still is, one of the great masters of this century."

Shortly after returning home, he decided to provide good wholesome food "'in a city that had no eating establishment for those who wanted either macro foods or vegetarian foods. I felt that opening a restaurant would be a good service and a good way of earning a living.'"

In 1967, the Golden Lotus Restaurant opened at 4th Avenue and Bayswater in Vancouver. Though it was slow going at the start, he persevered. A year later he returned to India (the restaurant was run by close friends), had a marriage arranged by Kirpal Singh, and fell in love with the bride (Ratana)–in that order. He gives a lot of credit to his wife and children to whatever he has achieved.

On 1 Jan. 1970 Lifestream opened at 4th and Burrard. The company grew rapidly until by 1981 it had about 100 employees and operations in Ontario and throughout Canada. But partnership disagreements resulted in the sale of Lifestream in 1981.

In 1985, he began Nature's Path, which sold Manna Bread. Again he had a hit on his hands and the company expanded into the production of Manna Breakfast Cereals. This spring they opened the first all-natural breakfast cereal plant in North America.

Over the years Arran has encountered "the inevitable rocky sections of the path, but they became times of learning and growing, of introspection and reflection. 'I would like to believe that the success of a business is due to a faithful commitment to my spiritual practice of meditation... that there is an element of grace, or whatever you want to call it, working in our lives.

"'I would like to think that the measure of spirituality is only the extent that we live it. It is what we practice, not so much what we profess, that counts.

"'I believe that you cannot sacrifice your spiritual focus for any reason–money or otherwise. No matter what anyone else does, the experience that I've had in my relationship to both my spiritual practice and my teacher has been so transcendent that to forget them would make me a hypocrite of the greatest order. It is very, very essential to be true, as far as is humanly possible, to your vision, and not to be

deflected from your goal. Our goal is not only a material one. We should, as my father put it, leave this world a better place than when we found it.'

"'One other thing is that I feel it's important that every business, as it become successful, must return something to the community.'

"Nature's Path Foods Inc., 7453 Progress Way, Delta, BC V4G 1E8."

The second success story in Woodlands, founded by Ratana Stephens. "Arran and Ratana Stephens' Woodlands, a spacious 100-seat natural foods restaurant, is a long way from the Golden Lotus restaurant days of the late '60s.

"Ratana, in 1969 the new bride of Golden Lotus owner Arran, arrived in Vancouver from India and started to work at the restaurant almost immediately. Born in the Punjab, she had been well educated, having received a Masters in English literature, Bachelor of Psychology, and a degree in Sanskrit from Agra University.

"In 1971, Golden Lotus became Lifestream health food store at 4th & Burrard. In the back was a small health food restaurant called Mother Nature's Inn. Lifestream eventually expanded to two stores, the second one on Broadway at Trafalgar. In its heyday, the company grew to include a wholesale natural foods distribution business with a warehouse and bakery in North Vancouver."

"Arran and Ratana sold Lifestream, the distribution company, and eventually closed the Fourth Avenue store. The Broadway Lifestream store was sold just last year and became Kitsilano Natural Foods. Ownership of Woodlands, the restaurant upstairs of the Broadway location, stayed with the couple, and Ratana continued to run it today."

The cash register at this vegetarian restaurant rings 400 to 500 times a day. She believes that a vegetarian diet is better nutritionally and better for the environment. He has to juggle things to balance her commitment to her family, her children, and her work. Where is their family's favorite place to eat out? At Woodlands!

"As part of their four-year tradition, Woodlands again this year is opening their doors on Christmas Day for the lonely and needy. Free vegetarian Christmas dinner will be available 4-6 p.m. 2582 Broadway, Vancouver.

Two photos (one in color) show Arran Stephens. One shows Ratana Stephens standing in front of a carved wooden sign for the Woodlands natural foods, vegetarian restaurant.

1968. **Product Name:** Chocoya (Chocolate Soymilk), and Natura (Natural Soymilk) [Original, Strawberry, or Vanilla].
**Manufacturer's Name:** Nutrisoya, Inc.
**Manufacturer's Address:** 4050 Pinard, St.-Hyacinthe, QUE, J2S 8K4, Canada. Phone: 514-796-4261.
**Date of Introduction:** 1990. November.
**Wt/Vol., Packaging, Price:** Natura: 250 ml and 1 liter Tetra Brik Aseptic cartons; Chocoya: 250 ml Tetra Brik Aseptic cartons.
**How Stored:** Shelf stable; refrigerate after opening.
**New Product–Documentation:** Leaflet from Quebec Government House in New York City. 1990. Oct. 15. This new line of natural soy beverages will be displayed at Booth #1346 at the Natural Foods Expo East in Philadelphia, Nov. 2-4. Contact: Mr. Giles Goulet.

Talk with Giles Goulet of Nutrisoya. 1990. Oct. 19. This company started making soyfoods in Oct. 1988, when they introduced tofu. Their next products will be the two soymilk products listed above, which will be launched in Canada in early November. The company has a large, modern plant. Chocoya, to be sold to the mass market, tastes as good as dairy milk. Natur-A, which comes in 3 flavors, is a purely natural soymilk, to be sold in natural stores. They use some (but not all) organic soybeans for the Natur-A. They grow their own soybeans on their own land. He is NOT a co-author (with main author J. Delisle) of the 1985 article titled "Nutritive value of soybean, rapeseed, and wheat proteins,..."

Ad in Natural Foods Merchandiser. 1990. Nov. "Rediscover a healthy drinking pleasure." Shows color photos of Chocoya and Natura (note spelling). Both are in French.

Talk with Johnathan Shore of Outremont, Quebec. 1994. Aug. 9. Natura is a Canadian soymilk product made in a government complex in St. Hyacinthe. It is made with added oil and honey, and sold in a Tetra Pak carton. It is marketed as a low-end (less expensive) product.

Update: 1995. May 15. Nick Feldman is president of the company (see 1995 interview). They are dependent to a significant degree on a government grant for their financial survival.

Update: As of Jan. 1998 their strawberry soymilk is still sold in New York City.

1969. Taira, Harue. 1990. Quality of soybeans for processed foods in Japan. *JARQ (Japan Agricultural Research Quarterly)* 24(3):224-30. Dec. [7 ref. Eng]
• ***Summary:*** Contents: Abstract. Introduction. Quality for food processing: Tofu, miso, natto. Variation of bean quality and suitability for processing. Factors inducing variations in the chemical composition and suitabilities for processing.

Figures show: (1) Consumption of soybeans in Japan in 1988 (1,000 tonnes): Total: 4,663 tonnes. Oil and meal 77%. Food 19%. Other 4%. Food products: 886 tonnes. Tofu and abura-age 57%. Kori-tofu 3%. Miso 20%. Natto: 11%. Other 9%. Individual food products (* An additional 69,000 tonnes are consumed in the form of cooked whole soybeans, yuba, kinako, moyashi {sprouts}, and others). Tofu and abura-age 505 tonnes. IOM and other USA 83%. Japan 11%. China 6%. Kori-tofu 29 tonnes. IOM and other USA 72%. China 28%. Natto 100 tonnes. China 50%. USA and Canada 30%. Japan 20%. Miso 179 tonnes. China 86%.

Japan 11%. IOM 3%. Soy sauce: Defatted soybean flakes 183 tonnes (97%) and whole soybeans 5 tonnes (3%).

(2) Frequency distribution of solid matter extractability in soybean milk (105 samples; 60 cultivars and 7 lines)–for varieties Enrei, Fukuyutaka, Akishirome, Akiyoshi, Tamahomare, Fujimijiro, Hyuuga, Shirosenari. Average value of U.S. soybeans. Mode: 79%. Range 70-82%.

(3) Correlation between protein and sucrose content in soybeans. Inversely correlated. The more protein, the less sucrose. (4) Correlation between hardness of steamed seeds and ammonia nitrogen content in natto. Directly correlated. The harder the steamed seeds, the more ammonia nitrogen in the finished natto.

(5) Variation in chemical composition and suitabilities of soybeans for processing: Raw soybeans for processing, soybean milk for tofu, steamed seeds for miso, natto, cooked soybeans.

Tables: (1) Relationship between soybeans and processed foods in raw soybeans, soybean milk, and steamed seeds. (2) Chemical composition and suitability of soybeans from USA, China, and Japan for processing into tofu, miso, natto, cooked soybeans. Varieties: Enrei, Fukuyutaka, IOM (USA; low protein, high oil), Tamahomare, Kitamusume, Miyagishirome (large seeded), Nattoshoryu (small seeded), Chinese (low protein, high carbohydrate). Address: Dep. of Utilization, National Food Research Inst., Ministry of Agriculture & Forestry, Koto-ku, Tokyo.

1970. USDA Foreign Agricultural Service, Information Systems Management Div., Database Administration Branch. 1990. The world's leading soybean crushing countries: Statistics by country, 1964-1990. FAS USDA Oilseeds/Products, Room 5638 South, 14th and Independence Ave. S.W., Washington, DC 20250-1000. 9 p. 28 x 38 cm computer printout.

• ***Summary:*** A search by Debby Pumphrey of the FACTS (Foreign Agricultural Commodity and Trade Statistics) database, for the amount of soybeans [commodity code: 2222000] crushed for domestic consumption by various countries worldwide, gives the following results, with all countries that crushed more than 500,000 tonnes ranked in descending order of amount of soybeans crushed. All figures are in metric tons (tonnes):

For the year 1990: USA 32,523,000, Brazil 13,700,000, Argentina 7,250,000, China 4,400,000, Japan 3,550,000, Netherlands 2,760,000, Germany, 2,550,000, Spain 2,300,000, Italy 2,025,000, India 1,785,000, Mexico 1,670,000, Taiwan 1,650,000, USSR 1,445,000, Belgium-Luxembourg 1,180,000, Canada 1,100,000, South Korea 840,000, Romania 789,000, Portugal 610,000, and United Kingdom 605,000.

In 1990 a total of 88,515,000 tonnes of soybeans were crushed worldwide. Of this total, the USA crushed 36.7%, Brazil crushed 15.5%, and Argentina crushed 8.2%.

For the year 1964/65: USA 13,036,000, Japan 1,460,000, China 1,304,000, West Germany 1,290,000, Canada 528,000. In 1964/65 a total of 21,357,000 tonnes of soybeans were crushed worldwide. Of this total, the USA crushed 61.0%, Japan crushed 6.8%, China crushed 6.1%, Brazil crushed 1.3%, and Argentina crushed 0.02%.

Note: At the top of the computer report is printed: Global Economic Data Exchange System [GEDES]. CP [Commodity Program] Subsystem–Commodity/Attribute Model. Crushing statistics are given for 175 countries from 1964/65 to 1990. Address: Washington, DC. Phone: 202-382-8232 or 202-447-4989.

1971. **Product Name:** Mandarin Soyfoods Garden Patties [Bar-B-Que, Cajun, and Teriyaki].
**Manufacturer's Name:** Mandarin Enterprises Ltd.
**Manufacturer's Address:** 11031 Bridgeport Rd. #107, Richmond, BC, V6X 3A2, Canada.
**Date of Introduction:** 1990.
**Ingredients:** Bar-B-Que: Tofu (organically grown soybeans, water, magnesium chloride [purified nigari]), brown rice, soybean fibre [probably okara], soy grits, brown rice flour, fresh onions, fresh carrots, fresh celery, fresh green peppers, crushed tomatoes, sesame seeds, rice syrup solids, sea salt, spices, tomato powder, powdered fruit solids, sunflower oil, smoke and spice extracts, natural flavor, spinach powder.
**Wt/Vol., Packaging, Price:** 2 patties. 170 gm (6 oz). Pinched ends box.
**How Stored:** Refrigerated or frozen.
**Nutrition:** Per 100 gm.: Calories 255, protein 10.3 gm, carbohydrates 27 gm, fat 6.0 gm (polyunsaturates 3.7 gm, monounsaturates 1.1 gm, saturates 0.6 gm, cholesterol 0 mg), dietary fiber 2.2 gm, sodium 1050 mg, potassium 425 mg.
**New Product–Documentation:** This is the line extension of 3 products launched in 1989. Talk with Gerry Blanchard of Natural Promotions, Vancouver, BC, Canada. 1992. Jan. 22. His company developed the packages/labels for these products. Mandarin now has 10-11 distributors in the USA. Six flavors are now available.

Label for Bar-B-Que sent by Gerry Blanchard. 1992. Jan. 22. 7 by 5.5 inches. Paperboard sleeve. Red, brown, and dark green on tan and light green. Illustration of a tofu burger with trimmings between buns, surrounded by a tomato, green pepper, celery stalk, and sliced onion. Silhouette of a cowboy riding a horse and swinging a lasso. "Ready in 3 minutes. Prepared with tofu, savoury herbs & vegetables. Cholesterol free. Microwaveable. Heat and serve." Called "Pâtés Jardinières" in French.

Two leaflets for all 6 Mandarin patties also sent. One shows a huge illustration of a burger with the 6 packages below it. The other shows the six packages lined up in a

typical produce case. On the back is a list of ingredients and nutritional composition for each flavor.

Ad in Vegetarian Times. 1992. April. "Mandarin Soy Foods. Since 1976 we have been committed to producing the finest in great tasting soyfoods. For a free copy of our newsletter "Soy News," just circle our number below."

1972. **Product Name:** [Amazing Grains–Roast Seitan (Organic)].
**Foreign Name:** Amazing Grains Rôti de Seitan (Biologique).
**Manufacturer's Name:** Noble Bean.
**Manufacturer's Address:** R.R. 1, McDonalds Corners (near Elphin), Ontario K0G 1M0, Canada. Phone: 613-278-2305.
**Date of Introduction:** 1990.
**Ingredients:** Certified organic wheat flour, spring water, peanut butter, canola oil, tamari, spices.
**Wt/Vol., Packaging, Price:** 6 oz.
**How Stored:** Refrigerated or frozen.
**New Product–Documentation:** Letter and photocopies of Labels from Allan Brown. 1998. Jan. 21. This product was made for 8 months in 1990.

1973. **Product Name:** [Extra Firm Tofu (Fine Herbs, or Pimento & Onion)].
**Foreign Name:** Tofu *(Fines Herbes, or Piment-Oignon)*.
**Manufacturer's Name:** Nutrisoya Inc.
**Manufacturer's Address:** 4050 Pinard, St.-Hyacinthe, QUE, J2S 8K4, Canada. Phone: 514-796-4261.
**Date of Introduction:** 1990.
**How Stored:** Vacuum packed.
**New Product–Documentation:** Talk with Nick Feldman, president of Nutrisoya. 1995. May 17. These two flavored tofu products, curded with magnesium chloride, were both introduced in about 1990. The company also still makes its natural tofu.

1974. Celetti, M.J.; Johnston, H.W.; Platt, H.W. 1990. A note on the incidence of soilborne fungi in six crops used in rotation with potatoes. *Phytoprotection* 71(2):97-100. [18 ref. Eng; fre]*
Address: Prince Edward Island Potato Marketing Commission, c/o Agriculture Canada, research station, P.O. Box 1210, Charlottetown, PEI C1A 7M8, Canada.

1975. Celetti, M.J.; Johnston, H.W.; Kimpinski, J.; Platt, H.W.; Martin, R.A. 1990. Incidence of soil-borne plant pathogens isolated from barley and winter wheat, and other crops in the rotation, on Prince Edward Island. *Plant Pathology* 39(4):606-611. [19 ref]*
Address: Prince Edward Island Potato Marketing Commission, c/o Agriculture Canada, research station, P.O. Box 1210, Charlottetown, PEI C1A 7M8, Canada.

1976. Celetti, M.J.; Johnston, H.W.; Kimpinski, J.; Platt, H.W. 1990. Incidence and populations of soilborne organisms in soybeans grown on Prince Edward island. *Canadian Plant Disease Survey* 70(1):83-84. *
Address: P.E.I. Potato Marketing Commission, Charlottetown, P.E.I.

1977. Sunrise Markets Inc. 1990. Tofu cookbook: 60 quick & easy recipes. Vancouver, BC, Canada: Sunrise Markets Inc. 80 p. No index. 22 cm.
• ***Summary:*** Contents: Sunrise Markets Inc. What is tofu? Sunrise tofu (Extra Firm {green label}, moderately firm {yellow/red label}, soft {blue label}, tofu dessert {pink label}). Cooking hints. Recipes–Soups. Salads. Dressings and dips. Entrees. Desserts. Nutritional breakdown of Sunrise Tofu. Other Sunrise products (Sunrise soya drinks {non-dairy in sweetened, unsweetened, vanilla/almond, and chocolate flavors}, Tofu-Rella {Tofu-based cheese in 5 flavors}, Mori-Nu Tofu, Sunrise Tofu Puffs {deep fried} and Dried Flavour Tofu, Tofreezi {non-dairy tofu-based frozen dessert in seven flavors}, Casa Del Norte Chili and Canadian Chef Beans & Tofu Wieners). Glossary. Substitutions and equivalents. Feedback.

A color photo on the front cover shows 8 different tofu dishes. On the rear cover are color photos of Sunrise's four tofu products. Address: 729 Powell St., Vancouver, BC V6A 1H5. Phone: 253-2326.

1978. Zavitz, James R. 1990. Charles Ambrose Zavitz B.S.A., D.Sc., LL.D. 1863-1942; Raymond Wilson Zavitz, B.S.A. In: The History of Lobo [Township, Ontario, Canada], 1820-1990. Ilderton, Ontario, Canada: Lobo Township Heritage Group. viii + 456 p. See p. 283-84. Illust. Index. 28 cm.
• ***Summary:*** Contains a nice biography of both Quaker men, with emphasis on the spiritual dimension of each man's life. The author is the grandson of Charles A. Zavitz and the son of Raymond Zavitz. Photos show: (1) Charles A. Zavitz in his academic robes, from a painting in the Ontario Agricultural College at Guelph. (2) Raymond and Jessie Zavitz in 1950, standing side by side. Address: R.R. 2, Ilderton, Ontario, Canada N0M 2A0.

1979. Zavitz, James R. 1990. The Coldstream Quakers of the Talbot Settlement. *Families* 19(2):92-93. *

1980. **Product Name:** Tofu.
**Manufacturer's Name:** Kootenay Natural Tofu.
**Manufacturer's Address:** Box 81, Silverton, BC, Canada V0G 2B0.
**Date of Introduction:** 1990?
**How Stored:** Refrigerated.

**New Product–Documentation:** Talk with Ed Westlind. 2000. Oct. 6. This company was started by Tim "Pedro" Hook, who was a college football player in the USA. He made tofu for about a year then sold the business to Ed and his wife. Ed would guess that the company was started in 1989 or 1990. Shortly after buying the tofu company, the Westlind's went through a divorce. Ed put all the tofu equipment in a warehouse, which it remains today. Note: Kootenay (pronounced KOOT-uh-nee) is the name of a river, a lake, and a national park in southeastern British Columbia, Canada.

1981. **Product Name:** [Tofu Ice Cream].
**Manufacturer's Name:** Les Aliments Multisoya Inc.
**Manufacturer's Address:** 1925 Route 139, Roxton-Sud, QUE, J0H 1Z0, Canada.
**Date of Introduction:** 1990?
**New Product–Documentation:** Talk with Harris Claude. 1991. March 20. This is the only product he makes currently. He used to make tofu but local bureaucrats shut him down saying that the whey he discharged into the sewage system was causing too much environmental pollution. He is now developing a soy yogurt. The labels have been printed.

1982. Kane, Marion. 1991. The cutting edge. *Toronto Star (Ontario, Canada).* Jan. 2. p. D8.
• ***Summary:*** In Japan, people are now enjoying foods made from soybeans bred and grown in Canada.

Plant breeders at Agriculture Canada have developed two soybean varieties for specialized markets in East Asia. Harovinton is a large-seeded variety used to make tofu. Nattosan is a small-seeded variety used to make natto, a popular fermented Japanese soy food.

"Let's take a cue from the Japanese and start finding tasty ways to prepare tofu here on home turf. After all, its the perfect protein alternative to meat."

1983. Agriculture Canada, Oilseeds Division, Grain Marketing Bureau, Grains and Oilseeds Branch, 1991. Oilseed sector profile. Ottawa, Ontario, Canada. 18 + 1 + 8 p. Jan. 28 cm. Spiral bound. [3 ref]
• ***Summary:*** Contents: Foreword. 1. Introduction. 2. The seed production subsector: Canola, soybeans, flaxseed, sunflower, mustard, composition, subsector performance. 3. The processing subsector: Background, processes, industry structure, production, subsector performance. 4. The marketing subsector: Oilseeds marketing, hedging, processed oilseed products marketing. 5. The marketing environment: Domestic, international markets.

Appendix A: Role of the federal government in the Canadian oilseed industry. Appendix B. Oilseed industry directory.

Table 7 shows that Canada can be divided into three regions: The Maritimes, Central Canada (Ontario, Quebec), and Western Canada.

Table 8 shows soybean exports by major markets. Canada exports more soybeans to the USA by far than to any other country. No. 2 is Japan.

A very important association is the Ontario Oilseed Industry Association, 1185 Eglinton Ave. E, Suite 101, Don Mills, Ontario M3C 3C6. Phone: (416) 429-1073. Address: 930 Carling Ave., Ottawa, ONT K1A 0C5, Canada. Phone: (613) 995-8324.

1984. **Product Name:** Hot & Spicy Tofu, Curry Tofu, and Horseradish Tofu.
**Manufacturer's Name:** Silverking Soyafoods.
**Manufacturer's Address:** Silverking Group, Box #20, Nelson, BC V1L 1C9, Canada. Phone: 604-353-7726.
**Date of Introduction:** 1991. January.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Greg Lundh, owner. 1992. Jan. 8. He started making these products in about Jan. 1991. They are all sold bulk, to avoid packaging, and thus have no labels. Hot & Spicy is the best seller. Horseradish has been discontinued.

1985. Tetra Pak Inc. 1991. Use of UHT/Aseptic white dairy milk in Europe and other countries, 1989. 889 Bridgeport Ave., Shelton, CT 06489. 2 p. Feb. 5. Unpublished manuscript.
• ***Summary:*** The following statistics are from Tetra Pak Statistics in Lausanne, Switzerland. In western Europe, 27,896 million liters of milk are consumed in total. Of this, 24,108 million liters are consumed in the eleven EEC countries. Countries not in the EEC are Austria, Cyprus, Finland, Iceland, Norway, Sweden, Switzerland, and Turkey. The four countries with the largest total milk consumption are the UK (6,687 million liters), France (3,735), Spain (3,624), and Germany (3,470). Of the all the milk consumed in Europe, 9,660 million liters (35% of the total) is packaged in UHT/Aseptic cartons. Of the all the milk consumed in the EEC, 9,376 million liters (39% of the EEC total) is packaged in UHT/Aseptic cartons. The four countries in which UHT/Aseptic packaging is most widely used are France (3,000 million liters; 80% of all milk in France), Spain (2,125; 59%), Germany (1,578; 45%), and Italy (1,497; 52%).

Outside of Europe, the world's biggest dairy milk consumers are: USA (24,429 million liters; 0.2% UHT/Aseptic), India (5,001; 0.4%), Japan (4,803; 4%), Mexico (2,895; 8%), and Canada (2,504; 0%). Countries with the highest percentage of UHT packaging are Yemen (39 million liters of milk consumed; 95% in UHT), Pakistan (97; 92%), Saudi Arabia (158; 82%), Thailand (34; 70%),

Singapore (28; 64%), and Chile (151; 61%). Address: Shelton, Connecticut.

1986. Brandenburg, Fred. 1991. Soybean production in various Canadian provinces (Interview). *SoyaScan Notes.* Feb. 26. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** "In Canada, Nova Scotia and Prince Edward Island have grown soybeans and are growing them now. I think Alberta is still experimenting, probably at the federal government's Lethbridge Research Station, Canada Dept. of Agriculture (P.O. Box 3000, Main, Lethbridge, Alberta, T1J 4B1, Canada. Phone: 403-327-4561). For more information on soybean cultivation in Prince Edward Island, Nova Scotia, and possibly even New Brunswick, I would first try the Atlantic Grains Council (P.O. Box 308, Kentville, Nova Scotia, B4N 3X1, Canada. Secretary Manager: A.F. McKae. Phone: 902-678-7712. Fax: 902-678-1215).

"I have not heard of soybeans being grown in Saskatchewan or Newfoundland, but the people at Lethbridge might know about any work in Saskatchewan. I know that soybeans have been grown at Lethbridge and they have been tried in southern Manitoba, so it seems likely that soybeans would have been also tried in Saskatchewan, which is in between. However the southern part of Saskatchewan is pretty much a dessert. Even wheat has a hard time growing there. In Saskatoon, Saskatchewan, there is a protein and oilseed pilot plant named POS. Ask for Roy A. Carr, president. They contract research work mostly with canola but if anyone knows about soybeans in Saskatchewan, they would likely be the ones.

Like the United States, Canada has at least one agricultural experiment station in each province. Ontario has two experimental stations, one university, and an agricultural college that all have soybean breeding programs.

Note: The southernmost portion of various Canadian provinces are at the following north latitudes: Ontario 42º. Nova Scotia 43º. New Brunswick 45º. Prince Edward Island 46º. Newfoundland 47º. Alberta and Saskatchewan 49º. It is interesting to note that in Sweden, soybeans have been grown successfully at Uppsala and Helsingfors (60º), Fiskeby, Norrköping 58º 30', and the Kalmar-Oland region (56-57º; here they are grown commercially). Address: Secretary/Manager, Ontario Soybean Growers' Marketing Board, Box 1199, 175 Keil Dr., S., Chatham, ONT, N7M 5L8, Canada. Phone: 519-352-7730.

1987. Shen, C.F.; deMan, L.; Buzzell, R.I.; deMan, J.M. 1991. Yield and quality of tofu as affected by soybean and soymilk characteristics: Glucono-delta-lactone coagulant. *J. of Food Science* 56(1):109-12. Jan/Feb. [14 ref]

• ***Summary:*** Nine soybean cultivars were compared for their suitability in making tofu. The yield of tofu was not influenced by the size of the soybeans. There is a correlation between the tofu yield and the protein and calcium content of both the soybeans and the soymilk. The protein content of the soymilk also influences the texture of the tofu. Address: Dep. of Food Science, Univ. of Guelph, Guelph, Ontario, Canada N1G 2W1 and Research Station, Agriculture Canada, Harrow, Ontario, Canada N0R 1G0.

1988. Downey, R.K. 1991. Re: Cultivation of soybeans in Saskatchewan and Manitoba provinces, and in the Northwest Territories, Canada. Questions answered on Soyfoods Center letterhead (dated 10 March 1991) and returned to SC on 11 March 1991. Letters (faxes) to William Shurtleff at Soyfoods Center, March 8 and 11. 1 p. [1 ref]

• ***Summary:*** Soybeans were first grown in Saskatchewan province at Indian Head in 1898, as reported by Angus MacKay in 1899. At that time Indian Head and Saskatchewan were part of the Northwest Territories.

"With regard to the cultivation of soybeans in Saskatchewan, I doubt very much whether soybeans were ever grown in any quantity for commercial purposes, either for forage or grain. The number of heat units and the length of the growing season are not sufficient to provide a competitive yield to other competing crop plants in Saskatchewan, particularly with the maturity of the early soybean introductions.

"Soybeans were commercially produced, however, in Manitoba, but I am not sure what year this cultivation was first begun. You might want to inquire from Dr. Baldur Stefansson at the University of Manitoba (Plant Science Dept., Winnipeg, MAN, R3T 2N2. Phone: 204-474-8221) since he was involved in breeding soybeans in the early 1950's and he may have investigated their previous history in that province. Stef is now retired but comes into the office frequently.

"If soybeans were ever grown in what is today the Northwest Territories, it would have been at the Canada Agric. Research Farm at mile 1019 on the Alaska Highway. If they were grown, it should be reported in the station's annual report. The station was closed about 10 years ago. We'll see if we can find anything in the reports of the retired station head."

Note: This is the earliest document seen (Jan. 2010) showing that soybeans were once grown in the Northwest Territories. However the boundaries have shifted. We known of no documents showing that soybeans were cultivated in today's Northwest Territories, however this document offers a lead. Address: Head, Oilseeds Section, Research Station, 107 Science Crescent, Saskatoon, Saskatchewan, S7N 0X2, Canada. Phone: 306-975-7014.

1989. Downey, R.K. 1991. Re: Cultivation of soybeans in Saskatchewan and in the Northwest Territories, Canada.

Letter to William Shurtleff at Soyfoods Center, March 14. 1 p. Typed, with signature on letterhead. [1 ref]
• ***Summary:*** He has done a little more digging with regard to testing of soybeans in the North West Territories, and he has contacted Mr. Joe Tsukamoto, 32-19th Street, Brandon, Manitoba, Canada R7B 1K2. Mr. Tsukamoto has just retired from Manitoba Agriculture but was previously in charge of the Agriculture Canada Research Farm at Mile 10-19 on the Alaska Highway. That Station is, of course, in the Yukon territory and not in the North West Territories. Joe indicated that at Mile 10-19 they never attempted to grow beans of any type because they were subject to frost almost any month of the year due to the close proximity of the glaciers.

However, Joe did suggest that they might have grown the Maple Presto at Fort Simpson [in the Northwest Territories] about 7-10 years ago. The person who was doing demonstrations at that location at that time was Mr. Dick Filteau.

He suggests that Shurtleff might want to contact the librarian at the Central Agricultural Library in Ottawa to review the annual reports from that location to determine whether soybeans were ever tested at that research farm. Note: See 1991 SoyaScan interview with Filteau. Address: Head, Oilseeds Section, Research Station, 107 Science Crescent, Saskatoon, Saskatchewan, S7N 0X2, Canada. Phone: 306-975-7014.

1990. Bertin, Oliver. 1991. Two Toronto terminals closing: Move will hurt soybean farmers. *Globe & Mail (Toronto, ONT, Canada).* March 16. p. B9. Metro edition.
• ***Summary:*** The Canada Malting Co. Ltd. and Victory Soya Mills Ltd., "two of Canada's most important grain terminals, are closing, in moves industry experts say will have major ramifications for farmers, consumers and the port of Toronto."

The "Victory Soya Mills Ltd. plant was closed this week and the 80 employees are cleaning out the last of the soybeans, a process that will take about 6 weeks. The plant has not yet been sold. Victory's general manager, Murray Davis, said the closing will have 'major, major ramifications' for farmers, consumers and industry because it was the largest and most important soybean crusher in Canada. 'When you take a 15- or 20-million-bushel crush out of the system you have to feel the impact,' he said...

"Ontario soybean farmers, however, said they were 'reeling at the news' that the plant would close. 'It's as though our worst nightmare has come to life,' said Larry Miehls, president of the Ontario Soybean Growers Marketing Board. 'Our whole industry is being turned upside down.'

"Mr. Miehls said the closing will threaten the viability of Canada's soybean industry and reduce competition because there were only three crushers in Canada, and Victory was the largest. Farmers will now have to ship their beans to U.S. crushers–an expensive proposition–or risk getting a lower price from the two crushers left in Canada. Both of these plants are foreign owned. Central Soya Inc. has a plant in Hamilton that it bought some years ago from Toronto-based Canada Packers Inc., while Archer-Daniels-Midland Co. of Decatur, Illinois owns a plant in Windsor, Ontario [ADM Agri-Industries Ltd.]...

"Soybeans are grown by more than 25,000 farmers, or one-third of all the farmers in Ontario. Moreover, it is one of Ontario's most important crops, with sales last year of about $350-million...

"Mr. Davis said the Victory plant was closed for many reasons. It was becoming increasingly difficult to get soybean trucks into downtown Toronto, municipal taxes were too high and the Harbourfront development was getting closer. But the soybean industry has also suffered as a result of government policies. The federal government subsidizes the shipment of a competing product, canola seed, from Western Canada, but does not subsidize soybean crushing. Victory has also suffered under the Canada-U.S. free-trade agreement. The U.S. levies an 18-per-cent tariff on soybean oil imports, while Canada charges only 5 per cent on oil coming in. This, industry officials said, has made it difficult for Canadian crushers to compete.

"The closing of the two installations marks the end of an era for Toronto as a major grain port. The giant grain freighters that carried barley and soybeans through the Great Lakes have stopped coming, and the last of the grain elevators that marked the Toronto skyline for decades will eventually be torn down, said Toronto Harbourmaster James Brewster." Address: Agriculture & Food Reporter, Canada.

1991. Burns, Howard. 1991. Plant closing upsets soybean producers: The only other two soybean processing plants in Ontario can't handle all the beans processed in the province. *London Free Press (Ontario, Canada).* March 19.
• ***Summary:*** Central Soya of Canada has closed its soybean processing plant in Toronto. According to Larry Miehls, head of the Ontario Soybean Growers' Marketing Board "The shutdown adds to the uncertainty of farmers preparing to plant what was to have been the largest soybean crop in Ontario history... The marketing board may be forced to look for new export buyers to make up for the loss but there's a down side to that. Miehls said the price farmers get is usually better at home than abroad. The closing also eliminates about two million bushels of storage space badly needed at harvest time. 'What are we going to do with our beans?' The two remaining plants, one in Windsor [ADM Agri-Industries Ltd.] and the other in Hamilton, can't handle all the soybeans produced in Ontario, he said."

1992. *Toronto Star (Ontario, Canada).*1991. Soya mill closing may speed growth, official suggests. March 19. p. A4.

• ***Summary:*** The closing of Victory Soya Mills on the Toronto waterfront presents an opportunity for major redevelopment of the area, says the Ontario government's waterfront adviser, Duncan Allen.

A development group has proposed a mix of industry, stores and housing on a 10-hectare (25 acre) site that includes the Victory Mills' silos and the former Canada Malting Co. property.

Victory Soya Mills hasn't been losing a lot of money, but it hasn't been earning sufficient return on invested capital for its owners, Central Soya Inc. of Fort Wayne, Indiana–according to Murray Davis, Victory's general manager. About 62 workers will lose their jobs when the plant's operations are wound down during the next few weeks.

The plant had processed about one third of Ontario's soybean crop into oil (for cooking oil and margarine) and protein-rich meal (for livestock feed).

1993. Tsukamoto, Joe. 1991. Soybeans in the Yukon Territory and in Manitoba, Canada (Interview). *SoyaScan Notes.* March 22. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Mr. Tsukamoto was the last director of the Whitehorse Experimental Farm (also called the Agricultural Research Station at Haines Junction, and Mile 10-19 Research Station (on the Alaska Highway); previously called Whitehorse Experimental Substation). This organization no longer exists. He was there for about 13 years, then he left for Manitoba when the Farm was closed by the government in about 1967. In about 1983 the Yukon Territorial Government government had just declared agriculture an industry, and they wanted to become self sufficient in perishable, goods, livestock, etc. So they asked him if he would come back from Manitoba to take charge of agricultural work. Since he had other obligations at the time, he recommended Dick Filteau (from Texas), who had just retired and who had extensive experience in this field. Filteau was hired by the Yukon Territorial Government as an advisor on a contract basis; he arrived there in 1983. Using daylength-insensitive soybean varieties provided by Joe, Filteau conducted soybean variety trials at 4-6 locations in the Yukon Territory for 2-3 years to see if they could be used as a protein supplement in livestock seeds. A summary of the results was tabulated and are probably available from the Director, Department of Agriculture, Yukon Territorial Government, in Whitehorse. Some of the plants grew well, especially in areas like Dawson City away from the ice sheets; near the ice sheets frost was the major problem. He thinks that soybeans are not presently being grown now in the Yukon Territory.

Joe doubts that soybeans have ever been tested by a government organization in the Northwest Territories; agriculture may not be declared an industry there.

Concerning soybeans in Manitoba, he was director of the soybean program in that province. The first daylength-sensitive varieties (Altona, and Portage) were tested in Manitoba in about 1961. These were developed by the pioneer, Dr. Baldur Stefansson, who also started the canola program and became world renowned in the latter field. The first daylength-insensitive varieties, Maple Presto and Maple Ridge, were also developed under this program, and introduced in about 1982 and 1985 respectively. They originated from Finnish varieties [sic, actually Swedish varieties from Dr. Sven Holmberg, especially Fiskeby V, according to Dr. Harvey Voldeng], probably developed by Dr. Harvey Voldeng at Ottawa. He is "the" federal soybean breeder in Canada.

The difference between daylength-sensitive and insensitive is that if you plant the insensitive one early in the spring, it will flower early, whereas the insensitive one, no matter when you plant it, will flower at a certain time of year (determined by the balance of light and dark hours).

In the early 1980s a peak of roughly 16,000 acres of soybeans were grown in south-central Manitoba. The government promoted the crop, then canola was given a premium price and soybean acreage began to decline. Today about 1,000 acres of daylength-insensitive soybean varieties are still grown in Manitoba, mostly for seed that is sold to North Dakota and Minnesota. The seed of these daylength-insensitive varieties is superior to the Maturity Group 0 or I varieties grown in the United States.

Joe was formerly an agronomist with the Manitoba Department of Agriculture, Brandon, Manitoba. His mandate was to investigate alternative crops. He retired about 1 month ago. Prior to that he worked for many years to develop about 6 lines of small-seeded natto varieties for export to Japan. He worked with a Japanese merchant and the Japan Natto Association. They are now being tested in Japan for commercial acceptance. Address: 32 19th St., Brandon, MAN, R7B 1K2, Canada. Phone: 204-727-5243.

1994. *Windsor Star (Essex County, Ontario, Canada).*1991. Windsor firm may gain from plant closure. March 22. p. 8B.

• ***Summary:*** "Windsor's ADM Agri Industries Ltd. [also known as Maple Leaf Monarch] became one of only two soybean processors left in Canada this week when a soybean crushing plant in Toronto [Victory Soya Mills Ltd.] closed its doors." Soybean farmers said "the closure is just another sign of their industry in crisis... Prior to the closing, all three Ontario processing plants were operating at 60-percent capacity, so the other two plants [including a plant in Hamilton run by Central Soya of Canada] should be able to take up the slack."

Larry Miehls, chairman of the Ontario Soybean Growers' Marketing Board, said: "'We've known for several years that the soybean processing industry has been having major problems, but we were hoping that they could

hang on until market conditions improve.' Miehls complained that western Canadian canola, which competes with soybean oil and meal, is supported with government subsidies, making it hard for soy farmers to compete. In addition, Ottawa has been slow to achieve free trade in soybean oil with the U.S., he said, and the Toronto plant closing makes the situation worse." John Davidse of the OSGMB added that "Growers need to become more efficient or work to develop export markets."

Note: Windsor is the southernmost of these three ports, located in the heart of Ontario's soybean growing area at the southwest end of Lake Erie across from Detroit, Michigan. Hamilton is the next farthest north, almost 200 miles to the northeast, on the southwestern end of Lake Ontario. Toronto, the farthest north, is also on Lake Ontario, about 40 miles northeast of Hamilton, and the furthest from the center of Ontario's soybean growing area.

1995. Kaldy, M.S. 1991. Re: Soybean production in Alberta and Canada. Letter to William Shurtleff at Soyfoods Center, March 26. 1 p. Typed, with signature on letterhead. [1 ref]
• ***Summary:*** "In the paper I published in 1972 in *Economic Botany,* I was working with data representing average values for all Canada and not specifically for Alberta. Commercial growing of soybean in Canada is concentrated in the province of Ontario. Soybean is also grown in the provinces of Quebec, Nova Scotia, Prince Edward Island and Manitoba on a smaller scale. My soybean data, therefore, reflects conditions in Ontario and to a lesser extent the other provinces named above, but not in Alberta.

"Individual farmers have tried growing soybean in Alberta periodically, but no written record is available. The soybean breeding program in Alberta was initiated in 1978. This breeding program has, however, been closed as of this writing. I am enclosing related reference materials on this work. These are the earliest documents I was able to find for soybean growing in Alberta." Address: Research Scientist, Crop Sciences Section, Research Station, P.O. Box 3000, Main, Lethbridge, Alberta, T1J 4B1, Canada. Phone: 403-327-4561.

1996. CSP Foods Ltd.; Central Soya of Canada Ltd. 1991. CSP Foods Ltd. and Central Soya of Canada Ltd. have signed a letter of intent to purchase the edible oils business of Canada Packers Inc. (News release). Canada. 7 p. March 27.
• ***Summary:*** "The purchase includes edible oil refineries in Montreal, Toronto and Wainwright, Alberta, and an oilseed crushing business at Fort Saskatchewan, Alberta, and a seed gathering station at Humboldt, Saskatchewan. A 50% ownership in Prairie Margarine Inc. of Edmonton is also part of the deal... The edible oil business of Canada Packers employs 400 people and generated consolidated sales of approximately $250-million in the fiscal year ended March 31, 1990.

"CSP Foods Ltd. is jointly owned by Saskatchewan Wheat Pool and Manitoba Pool Elevators and is the major processor of canola and sunflower seed in western Canada. It operates crushing and refining facilities at Altona, Manitoba and Nipawin, Saskatchewan. CSP Foods has a crush plant at Harrowby, Manitoba, a refinery at Dundas, Ontario and a 50% ownership in Prairie Margarine Inc. of Edmonton, Alberta.

"CSP Foods is a leading marketer of canola oil and meal products into the North American marketplace. CSP Foods employs 290 people and generated consolidated sales of approximately $200 million in the fiscal year ended March 31, 1991.

"Central Soya of Canada Limited operates a soya/canola crush plant at Hamilton, Ontario and is a subsidiary of Central Soya Company Inc."

"This acquisition will combine three Canadian companies into one. On a North American basis, the new company is estimated to have three percent of the Edible Oils market. This compares to US market shares for ADM, Cargill and Bunge of 33, 20 and 12 percent, respectively...

"Canola is Canada's major oilseed crop, accounting for 65-70 percent of Canadian oilseed production. It is second only to wheat in terms of gross farm revenue, averaging $850-900 million per year. Japan is the predominant export market for canola seed, taking up to 90 percent of total exports and up to 60 percent of canola production. The balance of the crop is sold to the domestic crushing sector, most of which is located in Western Canada."

"Central Soya of Canada Ltd. operates a soy/canola crush plant at Hamilton, Ontario with a soya crush of 365,000 tonnes a year (1,270 tonnes a day) and a canola crush of 227,000 tonnes a year (700 tonnes a day). The crushing canola and soya can take place simultaneously."

Also gives details on: The agreement in principle. Canada Packers Ltd. Assets. CSP Foods Ltd. current operations. Central Soya of Canada Ltd. current operations. New company structure (CSP Foods and Central Soya will each own 50% of the new company and both will provide three Board members or partners to the new company). Rationale for the purchase and merger. The impact on the market place. The impact on producers. Chart of assets of the 3 companies. One map shows the new company's oilseed refineries in Canada, and another map shows its oilseed crushing plants.

1997. *Agri-Book Magazine (Exeter, ONT, Canada).*1991. Beans in Canada. 17(5):1-36. March.
• ***Summary:*** This entire issue is about soybeans in Canada, with emphasis on soybean production. Articles include: On-farm roasting improves hog productivity. Soyboard (OSGMB) activities (incl. the new SoyOil symbol). Weed

control update. Marketing. Sustainable agriculture: Growing soybeans as an investment. Soybean breeding.

1998. *Farm & Country (Toronto, ONT, Canada).*1991. Where to put 2 million bushels? 55(11):12-13. March 26. *
• ***Summary:*** Discusses the closing of the Victory Soya Mills plant in Toronto, Ontario, Canada.

1999. Kerntke, Ulrich. 1991. Soya: Not just for eccentrics. *Dragoco Report* No. 3. p. 83-97. [5 ref. Eng]
• ***Summary:*** An interesting overview of soybean production worldwide and the markets for tofu and soymilk in Europe. Figure 1 is a bar chart ranking countries that produce more than 1 million tonnes of soybeans by their yields in tonnes per hectare. The country with the highest yield by far is Italy (approx. 3.1 tonnes/ha), followed by Canada (2.3), USA (2.2), Argentina (2.1), Paraguay (1.8), Brazil (1.7), China (1.3), Indonesia (1.1), and India (0.8 tonnes/ha). Figure 2 is a graph of soybean production in 4 major countries and others from 1935 to 1990. Figure 3 shows world market share of soybean production among 4 major countries and others from 1935 to 1990. The U.S. market share grew steadily until about 1965, but has fallen ever since. Brazil's market share showed significant growth after 1965, and Argentina's after 1975. Figure 4 shows the number of countries producing more than 100,000 tonnes of soybeans from 1935 to 1990. This number stayed steady at about 6-7 from 1935 to 1965, then rapidly increased to 15 in 1975 and 27 in 1990. Figures 6 and 7 are bar charts showing consumption of tofu in 1986, with projections to 1992 in France, Great Britain, Germany, Netherlands, and the rest of the EC (especially Switzerland). In 1992 for tofu, Germany is expected to be the leader followed by Great Britain and France. For soymilk, Great Britain is expected to be by far the leader, followed by Germany and France. The source of the tofu and soymilk information is Institut für Agrarpolitik, Stuttgart. Address: Product Manager, Flavor Div., Dragoco, Gerberding & Co. GmbH, D-3450 Holzminden, Germany. Phone: (05531) 704 327.

2000. Filteau, Dick. 1991. Growing soybeans in the Yukon Territory, Canada (Interview). *SoyaScan Notes.* April 11-12. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Dick first planted soybeans (the Maple Presto and Maple Ridge varieties), in May 1985 in the Yukon Territory. He obtained these soybeans from Joe Tsukamoto of Brandon, Manitoba. Joe was the last director of the research station at Haines Junction in the southwest Yukon until it was closed in 1968. The tests were such a failure and he did not try them again in 1986 or afterwards. As far as he knows, these were the first soybeans ever grown in the Yukon.

He feels the two main reasons for the failure were the cold and the photoperiod. The extended daylight did not allow the soybeans to get enough sleep. They need a certain number of hours of darkness each day. From mid-May to mid-July there are 20 hours of daylight each day. The plants grew but most did not bloom, and what few pods there were did not contain seeds. The crucifera (cabbage family) and turnips grow like crazy under these conditions, yielding world records for size.

He is quite sure that soybeans have never been grown in the Northwest Territories. He has not heard of them being grown on Prince Edward Island (PEI), which exports mainly potatoes and is called "spud island." If soybeans were grown, it would be on a small scale. To check, contact the PEI Department of Agriculture, or see the Agricultural Institute of Canada (AIC) Directory; this is a professional organization for the institutes of agrologists in each of the provinces; its head offices are in Ottawa.

The basic land situation in the Yukon is that the Canadian federal government controls 99.9% of the land. The federal government can release land to the territory, which can then lease or sell it. A block transfer of land usually takes place from the federal government to the territorial government. Only about 27,000 people now live in the entire territory. There is relatively little private ownership of land, except by homeowners in the city of Whitehorse. There has not yet been a resolution to land claim problems with the native Indians. The Yukon's main agricultural crops are grass (used as feed/hay for the 2,000+ horses), sod (used as grass for lawns around homes, mainly in Whitehorse), and vegetables (often grown under plastic covers or in greenhouses). Not much grain is grown, except for a little barley. Address: Lot 58, 2801 East Harrison, Harlington, Texas 78550. Phone: 512-421-4586.

2001. *Toronto Star (Ontario, Canada).*1991. Ontario soybean growers crushed by plant closing [Victory Soya Mills]. April 11. p. C1, C10. *
• ***Summary:*** Central Soya Co., Inc. has decided to close this pioneering plant.

2002. Yakabushi, Konrad. 1991. Ontario soybean growers crushed by plant closing. *Toronto Star (Ontario, Canada).* April 11. p. C1, C10.
• ***Summary:*** Last month Victory Soya Mills, Ontario's largest soybean crusher, ceased operations and padlocked the doors of its plant on Lakeshore Blvd. East, thus closing a chapter in Toronto's history.

For almost 50 years, "convoys of trucks had converged on Queen's Quay during the dying days of Indian summer to unload" the harvest of many Ontario farms at the soybean crushing facility.

While some Toronto residents will hardly miss the mile-long traffic snarls, "the closure has left many others with a wistful sense that an annual rite of autumn and a historic Toronto landmark, are soon to be lost forever."

But for many of Ontario's 25,000 soybean farmers, whose crops were crushed by Victory Soya Mills, the plant closure raises more serious issues; where will they sell their crops in the future? Central Soya Co. Inc. (Fort Wayne, Indiana), the plant's owner blames the demise "on several factors, including high municipal taxes, traffic problems and encroaching development on the city's waterfront." Bill Campbell, vice-president of processing at Central Soya, says the basic problem was that "the plant was unable to operate profitably in that environment." The larger problem is that there is an excess of soybean crushing capacity in North America.

Soybean farmers point to federal policies aimed at promoting production of canola, a competing oilseed grown on the Prairies to the west. Even today, "Ottawa subsidizes the shipment of canola to Eastern Canada and, during the 1970s, handed out grants to encourage the construction of canola crushers in the West. Central Soya told the Ontario Soybean Growers' Marketing Board that the plant might be spared if the Board could get the government to change some of those policies.

Built in 1944 during World War II, the plant was a key factor in the birth and development of Ontario's (and Canada's) soybean industry. Production rose rapidly during the 1970s "as continent-wide health concerns sparked a move away from animal fats to vegetable oils." Soybeans even found their way onto Canadian dining tables in the form of margarine, salad and cooking oils, soyburgers, tofu, and soy flour in baked goods. Moreover, soybeans were increasingly used in industrial applications from printing inks to paints, and soybean meal became the standard protein source in livestock and poultry feeds.

Today Ontario grows 95% of Canada's soybeans and 70% of these are grown in southwestern Ontario, which stretches further south than Detroit or Ann Arbor, Michigan.

Until last year, about 85% of Ontario's soybean crop was crushed in Canada yielding two value-added products: crude soybean oil and protein-rich soybean meal. But with the closure of Victory Soya Mills, about one-third of Canada's soybean crushing capacity and roughly 2 million bushels of soybean storage space have been eliminated, farmers will have to sell their soybeans anywhere they can.

Central Soya, which owns a smaller soybean crushing plant in Hamilton, Ontario, "says it is considering expanding that plant to make up for the lost capacity in Toronto.

The only other Canadian plant that crushes soybeans is ADM Agri-Industries, Ltd. (dba Maple Leaf Monarch), in Windsor, Ontario, owned by ADM of Decatur, Illinois.

It seems clear that the plant closure will hurt Ontario soybean farmers, in both the short and long terms. They may end up having more of their soybeans crushed in the United States and they will surely have to expand their markets overseas.

Photos show: (1) The Victory Soya Mills plant and silos. (2) Jim Allin, a soybean grower, standing next to a large sack of Pioneer brand soybean seed.

2003. MacLeod, John A. 1991. The history and rapid rise of soybeans on Prince Edward Island, Canada (Interview). *SoyaScan Notes.* April 12. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** John, whose main interest is in soils, arrived at his present work on Prince Edward Island (PEI) in the fall of 1971. He has been told (but has never been able to verify it) that during the 1930s or 1940s a little soybean evaluation was conducted on PEI. The station librarian may be able to find something published on this. He is quite sure that soybeans arrived on PEI in the early 1970s. The testing of early varieties at that time was conducted by J. Brian Sanderson; he would have written up the results which would have been published in the Station's Research Summary. John has never heard of soybeans being grown in the Northwest Territories. In 1978 soybeans first started to be grown commercially on PEI; it was a cooperative project involving three private farmers and the experiment station. The crop did well and was used for seed to grow a bigger crop the next year.

A new era for soybeans in the Canadian Maritime Provinces began in the 1970s when Mr. Jerry Smeltzer, who was working at the Kentville research station in Nova Scotia, evaluated some varieties developed/bred by Dr. Harvey Voldeng, Canada's leading soybean breeder at the Agricultural Canada Central Experimental Farm, Ottawa, Ontario, Canada. Mr. Smeltzer has retired and is living in Kentville.

The big change in the soybean situation has been in the last 5-10 years with the introduction of some early varieties that have cold tolerance. The first promising variety was Maple Presto, which was very early maturing but a little low yielding. From that they learned that tolerance to cold was more important than earliness. New varieties, which are much better than Maple Presto and Maple Ridge, have taken soybeans from a "nothing crop" on PEI five years ago to an extremely important expanding acreage crop today. About 6,000 acres of soybeans were grown on PEI last year. The new varieties are Maple Isle and Maple Amber (developed by Dr. Voldeng), KG-20 (from King Grain), Baron, and Bicentennial (from the breeding program at Univ. of Guelph). Production guides for soybeans in the Atlantic Region, a soybean production bulletin, and a general crop production guide have been published. Statistics Canada still does not recognize soybeans as a crop here, so there are no good statistics, but there are estimates. These should be available at his station's library. 1985 was a very good year, and 1990 was even better. The soybeans are harvested as seed with a standard grain combine (using a different flexible header), roasted (for non-ruminants), then ground,

mixed with minerals, and fed to livestock, mainly hogs, together mainly with barley. The arrival of the roaster played a major role in helping the crop to grow. Soybeans are not hogged down because the beans ripen too late in the fall and the hogs are all housed.

Note: R.K. Downey, head of the Oilseeds Section, Agriculture Canada Research Station, Saskatoon, Saskatchewan, notes that Prince Edward Island has a very desirable climate and is a highly sought after summer resort area. The soils are very fertile and deep. Soybeans have not become a larger crop there mainly because of the difficulty of transporting a small amount of seed to a crusher or a major livestock market. Address: Research Scientist, Soils & Crops, Agriculture Canada, Charlottetown Research Station, P.O. Box 1210, Charlottetown, PE C1A 7MB, Canada. Phone: 902-566-6848.

2004. Messina, Mark; Barnes, Stephen. 1991. The role of soy products in reducing risk of cancer: Commentary. *J. of the National Cancer Institute* 83(8):541-45. April 17. [83 ref]

• ***Summary:*** Contents: Introduction. Isoflavones in cancer prevention. Protease inhibitors. Phytosterols and saponins. Inositol hexaphosphate [phytic acid]. Phytochemical variation. Isoflavones in plant physiology. Soybean processing. Discussion.

This is the report of a workshop held June 26-27, 1990, at the Guest Quarters Hotel in Bethesda, Maryland. Workshop members were Donna Baird, National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina; Stephen Barnes, University of Alabama at Birmingham, Birmingham, Alabama; David L. Brandon, Western Regional Research Center, USDA, Albany, California; James A. Duke, Agricultural Research Service, USDA, Beltsville, Maryland; Ernst Graf, The Pillsbury Co., Minneapolis, Minnesota; Ann R. Kennedy, University of Pennsylvania Medical School, Philadelphia; Renee M. Kosslak, Iowa State University, Ames; Irvin E. Liener, University of Minnesota, St. Paul; Mark Messina, National Cancer Institute, Bethesda, Maryland; Frank L. Meyskens, University of California, Irvine, California; A. Venket Rao, University of Toronto, Ontario, Canada; Kenneth D.R. Setchell, Children's Hospital, Cincinnati, Ohio; Bernie F. Szuhaj, Central Soya, Fort Wayne, Indiana.

"Since the initial recognition that diet plays a role in the etiology of certain cancers, particularly cancers of the breast and colon, considerable progress has been made in identifying dietary patterns associated with cancer risk. There is general agreement that a high-fat, low-fiber diet, like that consumed by much of the industrialized world, increases cancer risk and that plant-based diets, rich in whole grains, legumes, and fruits and vegetables, are protective...

"The recent workshop on The Role of Soy Products in Cancer Prevention, sponsored by the National Cancer Institute, had two objectives: (1) to evaluate the role of soybeans, food products derived from soybeans, and specific components of soybeans in the dietary prevention of cancer and (2) to recommend research initiatives and approaches for further studies of the effect of soy intake on human cancer risk. The meeting was chaired by Stephen Barnes and organized by Mark Messina."

Concerning isoflavones in cancer prevention: "Setchell concluded his presentation with a reminder (a) that all weak estrogens also have antiestrogenic activity; (b) that tamoxifen, which has been used therapeutically for breast cancer, is structurally related to some of the phytoestrogens; and (c) that vegetarians, who may have a lower risk of certain cancers, excrete higher levels of phytoestrogens." Mentions "soy molasses, a concentrate of the aqueous alcohol extract of soy flour" (p. 542).

Concerning phytosterols and saponins: "A. Venket Rao presented evidence for the reduction of colon cancer by phytosterols and saponins. Both substances are common constituents of plants, but the concentration in soybeans is particularly high... Rao said that while nutritional interest in phytosterols and saponins has focused on their cholesterol-lowering properties, some data suggest that these compounds may be anticarcinogens.

"Ernst Graf discussed the rationale for the hypothesis in which inositol 1,2,3,4,5,6- hexaphosphate ($IP_6$), not fiber, is postulated to be responsible for the inverse correlation between the incidence of colon cancer and the consumption of fiber-rich foods. Soybeans are an especially rich source, containing about 1.4% on a dry weight basis. This compound is well known to inhibit mineral absorption. It forms tight chelates with a variety of polyvalent metals such as calcium, zinc, and iron." However Graf noted that the ability to bind metal ions, particularly iron, may provide the basis for the anticarcinogenic effects of this compound. The iron may be a key factor, via the Haber-Weiss reaction, in the production of hydroxyl radicals, which are postulated to play a role in causing some cancers.

James Duke discussed phytochemical variation in soybeans, noting that the isoflavone content varies tremendously according to the plant part, variety, year harvested, and geographic location. In addition, as much as fivefold variation was found among different phenolic acids in soybeans, many of which have also been investigated as potential anticarcinogens.

Renee Kosslak noted that isoflavones play a role in plant physiology and survival. The isoflavones daidzein and genistein are the major inducers of the nodulation genes in *Bradyrhizobium* bacteria, which form nodules on soybeans. Kosslak suggested that if future research shows isoflavones and/or phytoestrogens to be important dietary factors in cancer prevention and if the demand for soyfoods

materializes, it may be possible to manipulate levels of these compounds in soybeans, using root fluorescence as a marker.

"The consensus of the meeting was that there are sufficient data to justify studying the impact of soybean intake on cancer risk in humans. There were three workshop recommendations. First, future dietary studies involving soybeans should be carried out using soy products rather than isolated compounds, since soybeans appear to contain several potential anticarcinogens... Second, standardized and improved analytical methods are needed so that the contents of all soy-based materials employed in soybean research, whether soybean fractions or soy products, can be accurately described. This methodology will allow for valid comparisons among studies. Third, basic research on the absorption, metabolism, and physiology of potential anticarcinogens in humans should be conducted. This research will likely help to determine the clinical relevancy of these compounds and to provide a basis for selecting specific soy products for use in future dietary studies."

Note: This is the earliest English-language document seen (April 2005) that contains the term "soy molasses." Letter (e-mail) from Daniel Chajuss. 2004. April 15. The soy molasses used in this experiment was obtained from Central Soya, many years after Central Soya bought the soy protein concentrate and soy molasses plant from Aarhus Oliefabriek A/S, Aarhus, Denmark–a plant that Hayes General Engineering had designed and had given a license to use to Aarhus Oliefabriek together with the name "soy molasses." Letter (e-mail) from Mark Messina. 2005. April 18. Stephen Barnes was the source of the term "soy molasses" in this paper, not Mark. Address: 1. Diet and Cancer Branch, Div. of Cancer Prevention and Control, National Cancer Inst., 9000 Rockville Pike, Bldg. EPN–Room 212C, Bethesda, Maryland 20892; 2. Univ. of Alabama at Birmingham, Birmingham, Alabama. Phone: 301-496-8573.

2005. Stefansson, B.R. 1991. Re: Work with soybeans in Manitoba, Canada. Letters to William Shurtleff at Soyfoods Center, April 17 and May 6–in reply to inquiry. 2 p. Typed, with signature.
• ***Summary:*** "I think that there was some work on soybeans at the Manitoba Agricultural College somewhere around 1912-1916. Apparently a variety named Manitoba Brown was released. I was not able to find a reference to this work.

"I began work on edible oil seeds in 1952. At that time an oil seed crushing plant (Coop Vegetable Oils) was operating at Altona, Manitoba. This plant was built to crush sunflower seed but production was not sufficient to supply the requirements of the plant. Consequently, my assignment was to see what could be done to improve the local supply of edible oil seed for crushing. We observed a number of crops but the conventional wisdom at the time suggested that I do some work with soybeans. These projects were initiated in 1952. Two varieties (Portage 1964 and Altona 1966) were released... Some local farm production of soybeans (see data enclosed) developed at this time... The soybean projects at the University of Manitoba were terminated in 1965. It had become obvious that soybeans were not well adapted to conditions in the Canadian Prairies. Since then most of my time was devoted to developing rapeseed or rapeseed/canola for this area. Rapeseed has provided substantial supplies of oil seeds for crushing in Western Canada.

"Attempts to introduce soybeans to the Canadian prairies have continued over a long time but without success. It seems to me that major changes in the adaptation of the crop would be required for successful commercial production in this area." Address: Prof. Emeritus, 923 Crescent Drive, Winnipeg, Manitoba, Canada; Former Prof. at Plant Science Dep., Univ. of Manitoba, Winnipeg, MAN, Canada R3T 2N2.

2006. Downey, R.K. 1991. Re: Cultivation of soybeans in Saskatchewan and in the Northwest Territories, Canada. Letter to William Shurtleff at Soyfoods Center, April 23. 1 p. Typed, with signature on letterhead. [1 ref]
• ***Summary:*** "Thanks for your letter of April 15 and the enclosures outlining the information you obtained from Joe Tsukamoto and Dick Filteau on soybeans in northern Canada." Note that Prince Edward Island has a very desirable climate and is highly sought after as a summer resort area. "The soils are very fertile and deep, and I would be very much surprised if soybeans have not been experimented with on the island. They would not have been established, mainly because of the difficulty of transporting a small amount of seed to a crusher or a major livestock market.

"I would suggest that you write to the Director of the Agriculture Canada Research Station, P.O. Box 1210, Charlottetown, Prince Edward Island C1A 7MB, requesting him to provide you with information on testing and utilization of soybeans in the province." Address: Head, Oilseeds Section, Research Station, 107 Science Crescent, Saskatoon, Saskatchewan, S7N 0X2, Canada. Phone: 306-975-7014.

2007. Smeltzer, Gerald G. 1991. Work with soybeans in Nova Scotia (Interview). *SoyaScan Notes*. April 25. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Jerry worked at the Agricultural Research Center at Kentville, Nova Scotia. From 1938 to 1953 he worked there for the Nova Scotia government doing extension work. He worked there for the Canadian federal government from 1953 to 1978, and started working with soybeans in 1954. He now lives in Kentville about 2 miles from the station.

He thinks that soybeans were introduced at Kentville in about 1915; that was when the station began its work and they tested many crops in those early years. A history of the Kentville station may contain that information. When he started his work with soybeans in 1954, one or two farmers were growing small plots of soybeans commercially. He got his germplasm from Dr. Harvey Voldeng at the research center in Ottawa. He worked with varieties like Altona and Maple Arrow. Soybean acreage in Nova Scotia reached its peak of about 4,000 to 5,000 acres in about 1985. Today he thinks that less than 1,000 acres are grown, and they are slightly subsidized. The soybeans are mostly run through a extruder and used only in feeds for dairy cattle. No oil is extracted. The main two barriers to expansion of the crop are killing frosts (in mid-May or mid-September) and economics. As far as he knows, no research work is presently being done with soybeans in Nova Scotia. Some work was done by Jim Langille (who was his counterpart at Nappan [pronounced nuh-PAN], but who has passed away).

Smeltzer (who retired in 1978 and now raises honey bees) wrote an unpublished 60-page summary of his research on soybeans (especially variety trials) in Nova Scotia during his 27 years with the federal government. After he retired they shredded almost every copy except one, which he now has and would like to share. Dr. George Jones, formerly from the University of Guelph and now working with soybeans in Prince Edward Island, also has a copy and he made copies for his coworkers. Smeltzer also published an article on soybean fertility. Address: 148 Belcher St., Kentville, NS B4N 1C9, Canada. Phone: 902-678-2793.

2008. Buzzell, R.I.; Anderson, T.R.; Hamill, A.S.; Welacky, T.W. 1991. Harovinton soybean. *Canadian J. of Plant Science* 71(2):525-26. April. [4 ref. Eng; fre]

• ***Summary:*** "Harovinton is a large-seeded soybean cultivar with a greater protein content than oilseed cultivars and is suitable for tofu production... Production will be on a contract basis with Canada Packers, Inc."

"Registration number 3118 was issued for Harovinton as a tofu-type soybean, by the Variety of Registration Office, Seed Division, Food Production and Inspection Branch of Agriculture Canada." Address: Research Station, Agriculture Canada, Harrow, Ontario, N0R 1G0, Canada.

2009. *Ontario Soybean Growers' Marketing Board Newsletter.*1991. Victory Soya Mills closes–permanently. April. p. 1.

• ***Summary:*** "The cornerstone of Canada's soybean industry was shattered in mid-March when Central Soya of Canada Ltd. announced that they were permanently closing their Toronto soybean crushing plant. Built in 1944 during World War II and called 'Victory Soy Mills', the plant effectively established the soybean industry in this country with a massive public relations campaign to encourage Ontario farmers to grow soybeans.

"The Toronto plant was purchased by Central Soya in 1985. They invested millions of dollars to upgrade it and make it one of their most efficient soybean crushing facilities. Central Soya also owns the soybean and canola crushing facility in Hamilton, Ontario and is owned itself by Gruppo Ferruzzi SpA of Italy. Ontario has one other soy/canola crushing plant located at Windsor, which is owned by Archer Daniels Midland [ADM Agri-Industries Ltd.].

"Several reasons have been cited for closing Victory Soya Mills including a number of federal and provincial programs which have benefited the canola industry at the expense of the soybean industry. These include grants to build canola crushing facilities during the 1970's and transportation subsidies which still help to ship canola seed and canola products to eastern Canadian markets. The plant's location on the harbourfront of Toronto was also a factor. In addition to high real estate value and high taxes, truck access has become difficult in recent years.

"Closing the plant means that Canada will lose more than one third of its soybean processing capacity, over two million bushels of storage and 80 jobs. This comes at a time when Ontario farmers are expected to plant their biggest-ever soybean crop." Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

2010. *Toronto Star (Ontario, Canada).*1991. Canada Packers agrees to sell edible oils unit to joint venture. May 28. p. B5.

• ***Summary:*** Canada Packers Inc., Canada's largest food processing company, announced yesterday that it "has signed a letter of intent to sell its edible oils division to a joint venture company to be formed by Central Soya of Canada Ltd. and CSP Foods Ltd."

The "transaction is subject to the completion of a final purchase and sale agreement and to regulatory approvals."

The division includes an oilseed crushing business in Fort Sasakatchewan, Alberta.

"Central Soya of Canada is a unit of Central Soya Co., while CSP Foods is jointly owned by the Saskatchewan Wheat Pool and Manitoba Pool Elevators."

2011. Rowland, D.C. 1991. Re: Establishment of Canadian postal codes. Letter to William Shurtleff at Soyfoods Center, May 30. 1 p. Typed, with signature on letterhead.

• ***Summary:*** The Canadian postal code was introduced as a pilot project in the city of Ottawa in the fall of 1970. It was formally introduced in this city in the spring of 1971. The extension nationwide was completed in the spring of 1973.

The Canadian postal code is comprised of a six character Alpha-Numeric code in the format ANA NAN, where A is an alphabetical character and N is a numeric character; for example, K1A 0B1. The first 3 characters

represent the Forward Sortation Area and the second 3 represent the Local Delivery Unit.

Two-letter provincial and territorial symbols were first introduced at about the same time as the postal code through an international agreement with the United States. The official use of the two-letter symbols (not abbreviations) became effective on 1 Jan. 1982. These symbols are AB = Alberta, BC = British Columbia, LB = Labrador, MB = Manitoba, NB = New Brunswick, NF = Newfoundland, NS = Nova Scotia, NT = Northwest Territories, ON = Ontario, PE = Prince Edward Island, PQ or QC = Quebec, SK = Saskatchewan, YT = Yukon Territory. Address: Corporate Manager, Customer Servic, Canada Post Corp., Ottawa, Ontario K1A 0B1, Canada.

2012. Kane, Marion. 1991. Nifty Canadian invention a boon to the Third World. *Toronto Star (Ontario, Canada).* June 19. p. D2.
• ***Summary:*** The Soya Cow, invented by Raj Gupta, is a machine that makes palatable, low-cost, high-protein soymilk in Hyderabad, India, at one of the Child Haven homes for poor children. The machine is a breakthrough in technology; no oxygen enters during the grinding of the soybeans, and this eliminates the "beany" flavor found in most soymilks. A photo shows two workers near the compact machine.

2013. *Contact (Plenty Canada).*1991. The promise of soy foods: Sri Lanka. 1(3):1-3.
• ***Summary:*** A photo shows Muttiah Jeyabalan, a native Sri Lankan, who is Plenty Canada's Program Officer for Asia and the Caribbean. Since 1985 he has taken a major part in developing Plenty Canada's program that provides two benefits to Sri Lankans: nutrition and economic opportunity. Plenty Canada's project has recently received $4.7 million funding from CIDA, the Canadian International Development Agency, as it enters its second 5-year phase. In the first 4-year phase of the Soya promotion program, two soy centers were established, one in Kandy and one in Colombo. The emphasis was on training, including extension programs, that assisted women's groups in starting income-generating soy-related businesses. In Sri Lanka, food is traditionally a woman's business. Soya products needed to be popularized and marketed to the general public. The key soyfoods were soy nuts, tofu, ice cream, popsicles, cakes, fried beans, yogurt, curries and tempeh. "Thirty Sri Lankan enterprises, mostly women-run, were initiated and are now self-sufficient." Soyfoods were incorporated in traditional local dishes. Soy ice cream is very popular. Janine Dudding is a Plenty Canada advisor to the Sri Lanka project. Peter Dudding is project director. Address: R.R. #3, Lanark, ONT, K0G 9Z9, Canada. Phone: (613) 278-2215.

2014. *Contact (Plenty Canada).*1991. A hopeful effort: San Bartolo soy products [in Guatemala]. 1(3):4-5.
• ***Summary:*** A photo shows 5 Guatemalans, 3 in traditional Mayan dress, standing behind an ice cream and popsicle truck labeled Ricos Helados de Soya. "After ten years of operation, Plenty's Soy Centre in [Solola], Guatemala, is approaching self-sufficiency... the centre is now an established micro-enterprise with a proven product line." It is administered by ADEEC (Guatemalan Association of Economic, Cultural and Educational Development), a native-based non-governmental organization (NGO) directed by Roderico Teni, with Sebastian Sub Xol as Asst. Director. "As in Sri Lanka, the introduction of soy products to the general population is much faster when sold as ready-to-eat items or when easily incorporated into a traditional dish." Soy ice cream and popsicles are extremely popular, but "the most accepted product has been the soy cheese, tofu, which is cooked with tomatoes and other vegetables instead of or as a supplement to eggs.

"The major success, however, has been in the approach to other Guatemalan institutions. 'Now we are beginning to see much larger orders, particularly the soy milk and the tofu,' Sub Xol said. 'Even commercial ice-cream makers, who use a lot of dairy milk, are starting to use our soy milk, which is about half the price of dairy milk.' Teni emphasized that by selling soy products to the larger institutions, particularly schools, orphanages and hospitals, the protein-rich supplement gets to the people who need it most."

Note: Plenty International (Jan. 1994) notes that this company is now named Alimentos San Bartolo, located at Apartado Postal 118, Solola, San Bartolo, Guatemala. Phone: 502-514896. Address: R.R. #3, Lanark, ONT, K0G 9Z9, Canada. Phone: (613) 278-2215.

2015. Early history of Wenger Manufacturing, Inc., founded by Joe and Louis Wenger. 1991. Sabetha, Kansas. 9 p. Unpublished typescript. July 31. 28 cm.
• ***Summary:*** "Joe and Louis Wenger founded Wenger Manufacturing, Inc. (then the Wenger Mixer Company) in Sabetha, Kansas, in 1935. The company today designs and manufactures industrial food, pet food, and aquatic feed processing machinery for a world market.

"The Wenger brothers, born at the turn of the century, grew up on a farm near Lamar, Missouri. Following the death of their parents, Joe and Louis–the youngest in a family of 9 sons–moved to Sabetha, Kansas to work on the farms of their older brothers who had moved previously to the Kansas community. The Wengers built and operated a small custom feed mill which serviced the local farm community. Because financial resources were short in 1930, much of the machinery required in the mill was manufactured by the brothers themselves from scrap metal and parts salvaged from area junk yards. Some of the

milling equipment built by Joe and Lou was unique at that time and attracted the attention of other area millers who offered to purchase similar machines for their own operations.

"The entrepreneurial seed was planted and the Wenger feed mill was soon being utilized as a testing-ground for the novel process machinery being created by the ambitious young brothers. Calling on feed millers in adjacent states, returning to Sabetha to build whatever machines they'd just sold, their confidence was being fueled by the early successes of their products in this specialized marketplace. Until 1941, all equipment was manufactured in a barn located near the rural homes of the two brothers. The first production items manufactured in this small "factory" were machines designed to mix and blend molasses and other liquid feed ingredients with dry feedstuffs such as grain and ground alfalfa. The Wengers became recognized as a major supplier of such machinery to the milling industry. Mid-50's milestones for Louis and Joe Wenger include their exploration with international trade, and it was about this time that they were joined in their business by their sons, LaVon and Don, a partnership that continues today.

"Among the company's early successes was the design and marketing of the first commercial process for pelletizing livestock feeds formulated with high levels of molasses, a product heretofore unavailable in their industry. This equipment became the cornerstone for the development of more sophisticated processing equipment and by 1957, the company had developed an industrial process and produced the first commercial machines for the continuous processing and cooking of the dry commercial petfoods now commonplace in our supermarkets, and for feeds for commercial aquatic species such as catfish, trout & shrimp. In 1961, the Wenger family produced the first extrusion cookers for use in the food processing industry which included machinery for the production of many snack foods, breakfast cereals, and other processed foodstuffs.

"As the first manufacturers of commercial cooking extruders for food and petfood–like most profitable businesses in profitable markets–Wenger quickly attracted competition. Many of the competitive machines are of foreign manufacture. And many are unabashed copies of the Wenger extruders. Within the markets pioneered by Wenger, the process of cooking grain base recipes to improve nutritional value, eliminate bacteriological activity, and improve organoleptic properties is still frequently referred to generically as the "Wenger process".

"Today the Sabetha firm founded by Joe & Louis Wenger specializes in the manufacture of a complete range of state-of-the-art commercial extrusion-cooking systems sized to accommodate laboratory and research applications to very large production applications with capacities as high as 30,000 pounds/hour. In addition to the cooking extruders, such systems may include continuous drying and toasting ovens (many as large as rail cars and mobile homes), industrial mixing equipment capable of intimately blending recipes as large as 10,000 pounds per batch, plus ancillary equipment such as flaking rolls for cereals and enrobers which apply seasonings or sugar to snacks, cereals, and other foods."

"Approximately 90% of the 'Texturized Vegetable Proteins' used worldwide are processed on Wenger machines."

"Neither Joe nor Louis Wenger were privileged with formal higher educations..."

"Wenger markets through two discrete sales divisions. The Industrial Division, officed at the company's Sabetha headquarters, is responsible for the firm's U.S. and Canadian equipment sales. The Export Division, Wenger International Inc., a Kansas city based independent affiliate, has its office at Crown Center Square, Kansas City, Missouri, and is responsible for all Wenger equipment sales outside the Continental U.S. and Canada. Wenger International has subsidiary offices in Antwerpen, Belgium, and Taichung City, Taiwan."

"Over 50% of Wenger's production is exported annually."

"All Wenger manufacturing, engineering, administrative, and research facilities are located at Sabetha. Approximately 175 thousand square feet of plant is used for the various manufacturing, warehousing, and research operations required. A 45,000 sq. ft. adjunct is scheduled to be constructed soon. The company's annual payroll exceeded 6 million dollars in 1990 with 170 full-time non-union employees who participate in a 7 million dollar company-funded profit sharing trust."

"All Wenger's plant expansions and equipment acquisitions–from the barn that functioned as the brothers' first 2-man 'factory' to today's modern, CNC equipped state-of-the-art manufacturing plant–have been financed and built entirely with their own resources."

"Wenger Manufacturing, Inc. remains privately held."

"Joe & Louis Wenger, now in their 80's, remain active and retain offices in the company they founded nearly 60 years ago."

2016. Carroll, Kenneth K. 1991. Review of clinical studies on cholesterol-lowering response to soy protein. *J. of the American Dietetic Assoc.* 91(7):820-27. July. [81 ref]
• ***Summary:*** Contents: Introduction. Effects of soy-protein diets on normocholesterolemic subjects. Effects of soy-protein diets on hypercholesterolemic subjects. Effects of soy-protein diets on different lipoprotein cholesterol and triglyceride levels. Possible reasons for varying responses of plasma or serum cholesterol to soy-protein diets: Characteristics of subjects, composition of diets, dietary protocols. Mechanism of action of dietary protein. Conclusions.

"Experiments on animals have shown that soybean protein has hypocholesterolemic and antiatherogenic properties. In human beings, substitution of soy protein for dietary animal protein or addition of soy protein to the diet lowers total and low-density-lipoprotein cholesterol levels in individuals with hypercholesterolemia. Reductions of 20% or more have been obtained with diets high in protein (about 20% of total energy) and relatively low in fat. Triglycerides are also decreased, particularly in subjects with hypertriglyceridemia, but soy-protein diets appear to have little effect on high-density-lipoprotein cholesterol levels. Responses are similar in men and women, but may be greater in younger than in older subjects... The mechanism of action is not known... Although the hypocholesterolemic response to dietary soy protein has been observed by a number of European research groups, substitution of soy protein for animal protein in North American diets has generally had little effect, for reasons that are still not clear." Address: Director of the Human Nutrition Center and Member of the Dep. of Biochemistry, Univ. of Western Ontario, London, ONT, N6A 5C1, Canada.

2017. Central Soya Co. 1991. 1990 annual report. Ft. Wayne, Indiana. 28 p. 28 cm.
• ***Summary:*** "The Company's 1990 financial performance reflects a significant increase over 1989. Net earnings increased 54% to $23.3 million in 1990 from $15.1 million the previous year." Net sales however decreased to $1,950.2 million in 1990 from $2,318.5 million in 1989.

"The Company's Chemurgy Division, which produced record sales and earnings again in 1990, successfully launched production in March at its new soy protein concentrate plant, the largest expansion project in the Company's history, at the Bellevue, Ohio multipurpose facility... New technology was used to produce a new soy concentrate product named Promoveal, designed as a nutritionally improved high protein milk replacer for use in specialty animal feed formulations... At Chattanooga, Tennessee, the soybean and canola processing plant and the vegetable oil refinery were scheduled to discontinue operations... At Toronto, Ontario, location problems and a lack of accessibility to vegetable oil markets prohibited profitable operation, and production was discontinued in March, 1991...

"Restructuring: The Processing and Refined Soya Products Groups were consolidated into the Oilseed Products Group which, along with the Animal Feed Group, now comprise the two major operating groups of Central Soya. Even more significantly, during 1990 the foundation was put in place for a reorganization of the Company's assets into a holding company–CSY Agri-Processing, Inc... CSY Agri-Processing, Inc. will be the parent company for three primary units, each of which will enjoy greater autonomy. The units include Central Soya Company, Inc.; Provimi Holding B.V... and Innovative Pork Concepts, Inc...

"Effective January 1, 1990, the Ferruzzi-owned European crushing operations were reorganized into a new company, Cereol. The Central Soya Utrecht [Netherlands] facility was sold to this group in early 1990... In May, an agreement was signed with Sojaprotein in Becej, Yugoslavia to manufacture and market soy protein concentrates under the name Central Protein, D.O.O."

Note: This is the earliest document seen (May 2005) that mentions Cereol. Address: P.O. Box 1400, Fort Wayne, Indiana 46801-1400.

2018. *INTSOY Newsletter (Urbana, Illinois).*1991. Popularity of soyfoods receives major boost in Sri Lanka. No. 43. p. 1-2. July.
• ***Summary:*** "Efforts by Plenty Canada to popularize processed soybean foods for improved nutrition and as a new income source are showing widespread success in Sri Lanka." The Canadian International Development Agency (CIDA) has agreed to fund the project with $4.7 million (Canadian) for 5 years. The program in soybean utilization is carried out in collaboration with the Sri Lankan Ministry of Agricultural Development and Research, and the Ministry of Planning Implementation.

"Plenty Canada has now completed Phase I of the project, which links more than 150 producers and retail outlets into an integrated marketing network. Two processing and retail centers are operating–one in Kandy and the other in Colombo. Retail outlets operating in Kandy, Colombo, and 9 other districts currently sell more than 35 processed soybean products. Sales for 1991 are projected at more than $Canadian 100,000...

"Products that are available include: soy ice cream, soy yogurt, tempeh, soy meat, soy instant dhal, soy-cereal mix, soy cocktail mix, and soy flour... Because of the increased demand for these products, Plenty Canada is considering setting up its own processing facility by the end of the year."

Photos show: (1) People lined up at a Sri Lanka Soya Utilization Project mobile kitchen. (2) Many of the packaged soy products that are sold.

2019. Laurin, Danielle; Jacques, H.; Moorjani, S.; Steinke, F.H.; Gagné, C.; Brun, D.; Lupien, P-J. 1991. Effects of a soy-protein beverage on plasma lipoproteins in children with familial hypercholesterolemia. *American J. of Clinical Nutrition* 54(1):98-103. July. [43 ref]
Address: 2. Département de nutrition humaine et de consommation, Pavillon Paul-Comtois, Université Laval, Québec, Canada.

2020. Kane, Marion. 1991. The cutting edge: Sink teeth into vegetarian fare. *Toronto Star (Ontario, Canada).* Aug. 28. p.

C3.
• ***Summary:*** At the seventh annual Vegetarian Food Faire at Harborfront's York Quay Centre, there will be plenty of mouth-watering food and info to get your teeth into. But there won't be any meat.

The Faire will be held on Sept. 7 and 8, from 11 a.m. to 6 p.m., sponsored by the Toronto Vegetarian Association. It "addresses what the group calls the 'four cornerstones of a vegetarian lifestyle: health, animal rights, environmental concerns and the elimination of world hunger." Soy City Foods will be there to prepare barbecued veggie burgers, tempeh stew, vegetable curries, tofu pot pies, and non-dairy brownies.

Dr. David Jenkins, of the Univ. of Toronto's nutrition department will explain the nutritional benefits of a vegetarian diet.

A large photo shows Penny Cassel of Soy City Foods as she shows off her Tempeh Reuben sandwich, a vegetarian delight. "Tempeh is an Asian food prepared by fermenting soybeans."

2021. Archer Daniels Midland Co. 1991. Annual report. P.O. Box 1470, Decatur, IL 62525. 33 p. Sept.
• ***Summary:*** Net sales and other operating income for 1991 (year ended June 30) were $8,468 million, up 9.2% from 1990. Net earnings for 1991 were $466.7 million, down 3.5% from 1990. Shareholders' equity (net worth) is $3,922 million, up 9.8% from 1990.

"Foreign oilseeds operations were strengthened with the acquisition of a major softseed plant in Erith, U.K., and several plants in Canada. Soy protein facilities currently being added to the Europoort plant in The Netherlands should be in operation by year's end and a marketing arrangement to supply Loders Croklaan, B.V., with soy protein concentrate gives the plant a good production base to begin operations."

"ADM now operates 136 U.S. processing plants and owns, or has an ownership interest in, 34 foreign plants in seven countries. The Company 149 terminal, country, and river grain elevators." A 2-page color photo (p. 2-3) shows "ADM's Europoort plant, near Rotterdam, the world's largest soybean processing facility. Construction is underway for the addition of a vegetable oil refinery, soy protein plants and a second cogeneration unit." ADM's "oilseed processing operations operated at lower profit levels. Export margins were reduced due to heavily subsidized South American and European oilseed product sales."

"The protein specialties division expanded its position as the world's largest supplier of value-added soy proteins this year. Construction began on a facility at Europoort to produce soy protein concentrates, isolated soy proteins and the specialized raw material from which these products are formulated. The facility will serve the growing demand in Europe and the USSR for food and animal feed ingredients.

"ADM will produce a line of soy protein concentrates which Loders Croklaan will market to the animal feed industry in Western Europe. The combination of ADM's production technology and Loders Croklaan's leadership position in the animal feed ingredient market will provide a major improvement in efficiency. Products will be supplied from the Europoort facility.

"Consumer acceptance of the all-vegetable protein food item, Midland Harvest's Harvest Burger, has been encouraging and exceeds expectations. This low-fat, cholesterol-free, reduced calorie product is being sold in selected U.S. markets and in several international markets, notably England and other European Community countries, the USSR, Czechoslovakia, Finland, Mexico and Canada.

"Haldane Food Groups acquired two additional companies: Granose Foods Ltd., a pioneer in the health food industry, and Unisoya [on 21 Dec. 1990], a soya milk production company. Additional bottling capacity was installed at Saucemasters Limited when the company moved operations to a larger facility shared with Snackmasters Limited, a newly formed company manufacturing snack meals. These TVP-based products are used with either noodles or rice and are sold through supermarkets and health food stores. Genice Limited added more yogurts and non-dairy ice creams to its product range. Frozen meals from both Vegetarian Cuisine Limited and Vegetarian Feasts Limited increased their market share. Production at the leased Coventry factory was transferred to the Granose factory at Newport Pagnell, where additional land is available for further expansion."

Page 32 lists the many ADM divisions worldwide. In Europe, key soyfoods-related divisions are: The British Arkady Co. Ltd. (William Pringle, Division Director), and ADM International Ltd. (John R. Mahlich, Managing Director). Both are located in the UK. Note: The Haldane Foods Group (Peter Fitch, Managing Director), which is currently under British Arkady, will soon become an independent division. Since 1985 Peter Fitch and John Mahlich have skillfully acquired 11 of England's most important natural-, vegetarian-, and soyfood manufacturing companies to make the Haldane Foods Group unique in the world as a professional, efficient, and innovative group with a very promising future in a rapidly growing market.

Note: In Dec. 1990, ADM started making soy protein concentrates at its plant in Europoort, Netherlands. Address: Decatur, Illinois.

2022. **Product Name:** Tofu.
**Manufacturer's Name:** Capital Bean Products Co.
**Manufacturer's Address:** 8-4095 Belgreen Dr. (P.O. Box 465), Gloucester, ONT, K1G 3N2, Canada. Phone: 613-737-1095. Fax 613-738-0489.

**Date of Introduction:** 1991. September.
**New Product–Documentation:** Letter (fax) from Ken Yip, president. 1992. Jan. 23. The company (which is also known as Kitchen Sprouts Farm) started producing silken tofu on 8 Sept. 1991, and now produces 23,500 lb/month.

2023. *Contact (Plenty Canada).*1991. Profile: A cooperant couple. 1(4):8. Summer.
• ***Summary:*** A photo shows Peter Dudding, Plenty Canada's Sri Lanka project director, and Jane Dudding, soya advisor. "Through training and entrepreneur support, more than 55 small soya businesses have been established that have stood the test of time and are profitable. Plenty Canada also provides employment to about 140 Sri Lankans."

Note: Over 9,000 people now donate money to Plenty Canada. Address: R.R. #3, Lanark, ONT, K0G 9Z9, Canada. Phone: (613) 278-2215.

2024. Gehl, David. 1991. Re: Field trials with soybeans at the experimental farm, Indian Head, Saskatchewan, Canada. Letter to William Shurtleff at Soyfoods Center, Oct. 1–in reply to inquiry. 1 p. Typed, with signature on letterhead.
• ***Summary:*** "In the early field trials, soybeans were found to be unadapted for field production in this area because there was insufficient heat units in most years. Soybeans were, however, included as a green manure, fallow substitute in a cereal rotation experiment. However, the 60 lb per acre seeding rate for soybeans was a serious obstacle to adoption of this practice. Since this early work soybeans have been grown here off and on when earlier maturing varieties have been introduced. The most recent tests conducted on the Indian Head Experimental Farm were in 1982 when frost prevented maturation and harvesting (as was the case in 1897). A Soybean Field Trial was sown and harvested in 1981. There were 13 varieties. The highest yielded 835 kg/ha. An early variety from southern Ontario, Maple Presto, averaged only 676 kg/ha." Address: Head, Seed Increase Unit, Experimental Farm, Box 760, Indian Head, SASK S0G 2K0, Canada.

2025. AGP–Ag Processing Inc a cooperative. 1991. Annual report: Partners in food production. 11717 Burt St., Omaha, Nebraska 68154-1581. 24 p. 28 cm.
• ***Summary:*** Net sales for 1991 (year ended Aug. 31) were $864.675 million, up 1.9% from $848.621 million in 1990. Earnings before income taxes: $43.016 million, down 14.1% from the $65.200 million in 1990. Contains an 8-year summary of consolidated operating and financial statistics.

The truck department expanded. A special division of Engineering and a Rail Transport Specialist were added. AGP Grain Cooperative organized and sold stock to local cooperatives. On 1 March 1991 AGP acquired a full-service vegetable oil refinery in Denison, Texas. A color aerial photo shows the plant.

Bar charts (p. 13-15) show annually, from 1984 to 1989: (1) Capital spending. (2) Depreciation. (3) Capitalization. (4) Long term debt to equity ratio. (5) Long term debt. (6) Members' equity. (7) Earnings before taxes. (8) Earnings before taxes to equity ratio. Contains many color photos, including top management and the Board of Directors, currently made up of four farmers and five cooperative elevator managers.

Membership: At fiscal year end, there were 381 active local cooperatives and 11 regional cooperatives located in 15 states and Canada. These AGP stockholders represent more than 300,000 farmers. Address: Omaha, Nebraska.

2026. *J. of the American College of Nutrition.*1991. Letters to the editor and author's responses: *Trans* fatty acids. 10(5):510-21. Oct. [74 ref]
• ***Summary:*** These nine letters show that U.S. per capita intake of *trans* fatty acids is a highly controversial subject. Letter #1, by Applewhite and Hunter (p. 510-11; 17 refs), is in response to a 1990 article by Enig, Keeney, and Sampugna.

Letter #2, by Enig, Keeney, Sampugna, and Atal (p. 512-14; 13 refs) is in response to letter #1.

Letter #3, by L.S. de Villiers of South Africa (p. 515; 10 refs) is in response to the same 1990 article by Enig, Keeney, and Sampugna.

Letter #4, by Scott M. Grundy of Southwestern Medical Center, Dallas, Texas (p. 515-16; 2 refs) is in response to the same 1990 article by Enig, Keeney, and Sampugna.

Letter #5, by Bruce J. Holub, Nutrition Research Centre for Health Promotion and Disease Prevention, University of Guelph, Ontario, Canada (p. 516-17; 2 refs) is in response to the same 1990 article by Enig, Keeney, and Sampugna.

Letter #6, by Fred A. Kummerow, 205 Burnsides Research Lab., University of Urbana, Illinois (p. 517; 2 refs) is in response to the same 1990 article by Enig, Keeney, and Sampugna.

Letter #7, by Enig, Keeney, Sampugna, and Atal (p. 517-18; 7 refs) is in response to the letters by Drs. de Villiers, Grundy, Holub, and Kummerow.

Letter #8, by Martijn B. Katan of Wageningen Agricultural University, Netherlands (p. 518-19; 3 refs) is in response to the same 1990 article by Enig, Keeney, and Sampugna.

Letter #9, by Enig, Keeney, Sampugna, and Atal (p. 519-21; 21 refs) is in response to the letter by Dr. Katan.

2027. *Ontario Export Soybeans (OSGMB).*1991. Preliminary crop quality evaluation. 5(1):2. Oct.
• ***Summary:*** The hot, dry growing conditions this season have raised oil levels in Ontario soybeans and lowered protein content. Percentage protein (on a dry basis; zero moisture) averaged 38% over the 28 samples tested, and oil content averaged 22.7%.

Two graphs show the changing average protein and oil content of Ontario soybeans from 1970 to 1990. Oil content has risen steadily from a low of 19.5% in 1970 to a high of 22.7% in 1990. Protein has fallen from a high of 44% in 1970 to a low of 38% in 1990. Address: Chatham, Ontario, Canada.

2028. *SoyaFoods (ASA, Europe).*1991. A green Europe? 2(2):3. Autumn. [1 ref]
• ***Summary:*** Europanel, a network of market research and information organizations based in 13 European countries plus Brazil, the USA, and Canada surveyed 28,047 households to determine the amount of environmental sensitivity in European countries. "Germany, Norway, Sweden and German-speaking Switzerland and Austria have the highest percentage (58%-62%) of environmentally conscious citizens. All other countries with the exception of France can be described as being to an average degree sensitive to environmental problems (41%-55%) whilst France has the lowest score at 29%."

2029. *Ottawa Citizen (Ontario, Canada).*1991. Milking a soya cow in order to feed the hungry. Nov. 24. p. E3.
• ***Summary:*** The SoyaCow, invented by Raj Gupta, is a machine that makes palatable, low-cost, high-protein soymilk. One machine is already helping to feed more than 100 poor children at a home run by Child Haven International in Hyderabad, India. "Child Haven, which began the project about two years ago, is now in the midst of building the first dozen machines. A machine costs about $3,000 but the price will fall as greater volumes are produced." A photo shows the compact SoyaCow machine.

2030. Bloyd-Peshkin, Sharon. 1991. Just soy moo. *Vegetarian Times.* Nov. p. 20.
• ***Summary:*** Every Canadian province has a law prohibiting the manufacture and sale of imitation dairy products, such as soy cheeses, ice creams, milk, etc. "The only exceptions to these laws are margarine, nondairy coffee whiteners, nondairy dessert toppings and infant formula, all of which may be sold."

"Two rationales are behind these laws, which have been on the books as long as 50 years. First, imitation dairy products are considered nutritionally inferior to their dairy counterparts, and fool consumers into thinking they are getting the nutritional benefits of dairy products when they are not... And second, imitation dairy products compete with real dairy products, harming the financial well-being of dairy farmers and processors."

2031. University of Guelph. 1991. Reopening ceremonies: Zavitz hall. Guelph, Ontario, Canada. 4 panels. 14 x 22 cm.
• ***Summary:*** This attractive invitation card is printed with black ink on flecked gray paper. On the front panel is an architectural drawing (by Lett Smith Architects) of the front of Zavitz Hall, at the University of Guelph, showing the renovations. The two inside panels state that the ceremonies will take place on Monday, November 11, 1991, at 5:00 p.m. in the Department of Fine Art Gallery, Room 210, Zavitz Hall. The names and titles of the six people comprising the "platform party" are given, including Dr. Brian Segal, President, Univ. of Guelph. The program includes acknowledgments and introductions, opening remarks, commentary, ribbon cutting, and reception and tours to follow.

On the back panel is a brief history: "Zavitz Hall was built in 1914 and was named in honour of Charles Zavitz, a graduate of the Ontario Agricultural College and head of department of field husbandry which was the building's first tenant.

"Art classes have been taught in Zavitz Hall since the Fine Art Department's formation under the Federal Colleges in 1964.

"In 1989, the University's Board of Governors accepted the recommendation of a feasibility study completed by Lett/Smitt Associates Ltd. of Toronto and approved a renovation program for the building.

"A book will be published later this year in celebration of the reopening of Zavitz Hall."

Note: The building was constructed from plans made to the last detail by Dr. Zavitz and his staff. Address: Guelph, Ontario, Canada.

2032. Lewis, David L. 1991. Henry Ford and the magic beanstalk. Paper presented to the Ontario Soybean Growers' Marketing Board. 8 p. Dec. 6. At annual meeting held in London, Onratia, Canada.
• ***Summary:*** Much of this interesting presentation are taken from the author's original and very authoritative book, *The Public Image of Henry Ford* (1976, see p. 282-85). "Henry Ford mostly is remembered for his Model T, mass production methods and the five-dollar day which doubled his workers' pay. But he should be equally remembered for his extensive soybean experimentation and research into plastics, his last great achievement and the work that delighted him more than any other.

"Ford grew up on a farm near Detroit, and had a lifelong interest in improving the lot of the farmer. As early as 1907 he experimented with a motorized tractor which he called an "automobile plow." During the 'teens and 'twenties he designed and built the Fordson tractor.

"In early 1928, Ford became interested in a new agricultural concept, farm chemurgy; that is, putting chemistry and allied sciences to work for agriculture. The auto king was chiefly interested in finding new industrial uses for farm crops, although he also hoped to find new ways to use crops for food.

"In 1929 Ford established a laboratory in Dearborn and began experiments to determine which plants or legumes offered the most promise. After extensive research, he decided in 1931–exactly 60 years ago–to focus attention on the soybean."

The author then presents an interesting and carefully documented discussion of Henry Ford's work growing soybeans and testing soybean varieties in Michigan, soybean plastics and the "plastic car," contemporary media comments on this car (see record for 1941), development of soybean fiber Ford's suit and tie made from soybeans (by 1938), Ford's unsuccessful attempts early in World War II to interest the U.S. armed forces in making uniforms out of soybean fabric, sale for the fiber fabrication process and machinery to The Drackett Company, of Cincinnati [Ohio], in Nov. 1943, work of Ford and Edsel Ruddiman with soyfoods."Ford also advanced his ideas about the soybean and chemurgy with exhibits and a film. In 1934, he planted a small plot of soybeans and exhibited soybean processing machinery in his company's exhibit area at the Chicago World's Fair. Similar exhibits were shown at various state, regional, and world's fairs during the 1930s. In 1935 the Ford Company produced and distributed *Farm of the Future*, a sound-slide film which illustrated Henry Ford's views on the importance of chemurgy.

"Ford's frequent declaration, 'soybeans will make millions of dollars of added income for farmers... and provide industry with materials to make needed things nobody even knows about now' was proved correct by the passage of time."

Today soybeans are still grown on Henry Ford's former Dearborn estate, Fair Lane. In fact, about 400 of the 2,300 Ford-owned acres surrounding Ford World Headquarters, located adjacent to the Ford estate, are devoted to soybean cultivation, a fact which amazes foreign visitors.

"Soybean cultivation does seem remarkable on property valued at hundreds of thousands of dollars per acre. But growing soybeans serves a practical purpose, according to George Anderson, manager of corporate real estate for Ford Motor Land Development Corporation. 'It creates an economic value and saves us from weed control,' he says.

"Anderson, who monitors 255 million square feet of Ford office and factory space around the world, has a sentimental attachment to the soybean fields remaining in Dearborn.

"'You watch the wind gently blowing the fields, and it's like an ocean,' he says. 'When you see a soybean field, it's a thing of beauty...'

"As for Henry Ford, through his experimentation, and the publicity he gave it, he made a substantial contribution to the increased utilization of the soybean. His work in this field, started when he was in his late sixties and carried forward until he was 80 years of age, is the outstanding achievement of his declining years. Even at 80, Ford found boyish delight in helping to prove that there was industrial and culinary magic in a beanstalk.

"All North Americans are beneficiaries of that magic, most of all soybean growers and those allied with them. If you and your Marketing Board ever designate a patron saint, or wish to memorialize a Champion of the Soybean, may I respectfully suggest that you consider Henry Ford for the honor. Were he alive, I'm sure that no other recognition would please him more. I'm also sure that he'd come to your ceremony in a soybean-derived car, wearing a soybean suit–*and* expect every dish in our luncheon to be based entirely on soybeans."

Note: Prof. Lewis is now (Dec. 1992) finishing a new book on the history of the Ford Motor Co. from 1956 to the present. It is sort of a continuation of the 3-volume work by Nevins and Hill (1954-1963). Address: Prof., School of Business Administration (Room B3253), Univ. of Michigan, Ann Arbor, MI 48109-1234. Phone: 313-764-9540.

2033. Ontario Soybean Growers' Marketing Board. 1991. Annual report. Box 1199, Chatham, ONT N7M 5L8, Canada. 20 p. 28 cm.
• ***Summary:*** This is a report for the year 1991. For a sample table of contents, see the 1992 issue. Address: Chatham, ONT, Canada. Phone: 519-352-7730.

2034. **Product Name:** Soymilk, and Cloth-Wrapped Tofu (Bou Bow Daufu).
**Manufacturer's Name:** Pak Fok Food Products Inc.
**Manufacturer's Address:** 2370 Midland Ave., Unit A-26 Winco Business Park, Scarborough, ONT, M1S 5C6, Canada. Phone: 416-299-7952.
**Date of Introduction:** 1991. December.
**New Product–Documentation:** Talk with Simon Kwan, owner. 1992. Oct. 8. Followed by a letter dated Oct. 9. He began making these two products in Dec. 1991, first the soymilk and then the tofu–which was the first tofu of its kind in Toronto. The texture of Bou Bow Tofu is very smooth and delicate, but it is very labor intensive to make. Mr. Kwan bought this company (the name has not changed) on 9 Oct. 1990 from Tony Lam, who was the second owner. The company was founded on 1 Jan. 1989 by Mr. Hok Chung Sung at the present address, probably under the name Dragon & Dragon Food Products. Pak Fok distributes its own products in the Toronto area.

2035. **Product Name:** Harvest Dinner Pattie.
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2847 Dundas St. West, Toronto, ONT, M6P 1Y6, Canada. Phone: 416-762-1257.
**Date of Introduction:** 1991. December.
**Ingredients:** Incl. soy mash [okara].
**New Product–Documentation:** Talk with Lorraine Guardino of Soy City Foods. 1992. Feb. 18. This product,

made with soy mash (okara) comes in an oval shape and is being sold as a main course. It currently does not have a chewy texture–but the consumer does not expect it to be chewy. It was first sold in mid-December 1991.

2036. **Product Name:** Tempeh Pâté.
**Manufacturer's Name:** Big Carrot Natural Foods Store (The).
**Manufacturer's Address:** Toronto, Canada.
**Date of Introduction:** 1991.
**Ingredients:** Incl. tempeh, carrots, tamari.
**New Product–Documentation:** Talk with (call from) RoseAnn Lawrence of Santa Rosa, California (Phone: 707-573-0596). This is the best natural foods store and deli she has ever seen. They even have their own cookbook–but it doesn't contain the recipe for this product. The pâté is made and sold in the store's deli. The recipe is a secret but the ingredients are on the label. It is sold in the form of a big loaf, like meatloaf, and the tempeh adds a chunky consistency. It is delicious spread on pita bread.

2037. Ontario Soybean Growers' Marketing Board. 1991. Tofu: The miracle food of the 90s. Box 1199, Chatham, ONT N7M 5L8, Canada. 22 p. 23 x 10 cm.
• ***Summary:*** This attractive and upbeat full-color booklet begins with an introduction and nutritional information, followed by 9 tofu recipes. Accompanying each recipe is a full-page color photo and a nutritional analysis. The tofu recipes: Two bean tofu chili. Jalapeno-cheddar corn muffins. Tofu vegetable pizza. Spicy tofu with green vegetables and noodles. Hot and sour soup. Chocolate orange sauce for angel food cake. Low-fat tofu cheesecake. Tofu antipasto. Fruity tofu cooker [smoothie].

Talk with Fred Brandenburg of the Ontario Soybean Growers' Marketing Board. 1994. Oct. 20. This is the single most popular publication ever issued by OSGMB. More than 100,000 have been printed since 1991. Address: Chatham, ONT, Canada. Phone: 519-352-7730.

2038. **Product Name:** Soymilk (in Glass Milk Bottle).
**Manufacturer's Name:** Soy City Foods.
**Manufacturer's Address:** 2849 Dundas St. W., Toronto, ONT, M6P 1Y6, Canada.
**Date of Introduction:** 1991.
**Wt/Vol., Packaging, Price:** Bottle.
**New Product–Documentation:** Interview with Jon Cloud of Soy City Foods. 1991. Jan. 28. His company will soon be launching a soymilk sold in recyclable milk bottles. He never went with Tetra Pak because he didn't like their cartons. He will send a label when it comes out.

He is now working closely with the government to develop soybeans that are free of trypsin. He wants to develop better testing procedures. He found that the better the soybean nodulation, the lower the trypsin inhibitor content of the beans.

2039. Chelf, Vicki Rae. 1991. Cooking with the right side of the brain: Creative vegetarian cooking. Garden City Park, NY: Avery Publishing Group Inc. viii + 283 p. Illust. incl. many color plates. Index. 28 cm.
• ***Summary:*** This vegetarian cookbook, which contains over 500 healthful recipes, shows a strong macrobiotic influence. The extensive glossary of ingredients includes good descriptions of adzuki beans, many sea vegetables, amaranth, amasake, gluten, gluten flour, koji, kudzu, miso, mochi, natto, natto miso, okara, quinoa, seitan, shoyu, silken tofu, soybeans, tamari, tempeh, tofu, and T.V.P. (Textured Vegetable Protein). All of these ingredients are used in recipes. There are at least 26 tofu recipes, 6 seitan recipes, and 4 tempeh recipes.

The author, who also illustrated this book, has been a vegetarian for 16 years. While living in Quebec, Canada, she wrote several French-language vegetarian cookbooks. The right side of the brain controls thoughts and actions that are creative, intuitive, spontaneous, and artistic, whereas the left side controls more logical, concise, analytical, and scientific thinking. Conventional education encourages development of the left side of the brain. This book encourages creative experimentation and improvisation with the recipes given.

2040. *FAO Food and Nutrition Paper.*1991. Report of joint FAO/WHO expert consultation on protein quality evaluation. No. 51. 66 p.
• ***Summary:*** In response to recommendations of the 5th session of the Codex Committee on Vegetable Proteins (CCVP) held in Ottawa, Canada, a joint FAO/WHO Expert Consultation on Protein Quality Evaluation was held in Bethesda, Maryland, USA from December 4-8 1989... This publication is a report of that meeting's findings.

"The Consultation concluded that the protein digestibility-corrected amino acid score method was the most suitable approach for routine evaluation of protein quality for humans and recommended the adoption of this method as an official method at international level." Address: Bethesda, Maryland, USA.

2041. Gouvernement du Québec, Ministère de l'Agriculture, des Pêcheries et de l'Alimentation, Conseil des Productions Végétales du Quebec (CPVQ). 1991. Oléoprotéagineux: Cultivars recommandés en 1991 [Oleoprotein seeds: Cultivars recommended in 1991 (Leaflet)]. Quebec, Canada. 2 p. 36 cm. [Fre]
• ***Summary:*** 16 varieties of soybeans are analyzed for areas with more than 2500 corn Heat Units; 4 varieties of soybeans are analyzed for areas with less than 2500 corn Heat Units. Address: Quebec, Canada.

2042. Hymowitz, T.; Bernard, R.L. 1991. Origin of the soybean and germplasm introduction and development in North America. In: H.L. Shands and L. Wiesner, eds. 1991-1992. Use of Plant Introductions in Cultivar Development: Proceedings of a symposium sponsored by Division C-1 of the Crop Science Society of America in Las Vegas, Nevada, 19 Oct. 1989. 2 vols. Part 1. CSSA Special Publication Number 17. Madison, Wisconsin: Crop Science Society of America (CSSA). 164 p. See p. 147-64. Chap. 9. Crop Science Society of America Special Publication No. 17. [34 ref]

• ***Summary:*** Contents: Introduction. Origin of the genus *glycine.* Origin of the soybean. Introduction of the soybean to North America (by Samuel Bowen in 1765). Experiment stations and technology. Introduced soybean germplasm. Cultivar development. *Glycine soja.* Wild perennial *glycine* species.

"The genus *Glycine* Willd is divided into two subgenera, *Glycine* and *Soja* (Moench) F.J. Herm. The subgenus *Glycine* contains 15 wild perennial species (Singh et al., 1988; Tindale and Craven, 1988). Thirteen of the species *[G. albicans* Tind. and Craven, *G. arenaria* Tind., *G. curvata* Tind., *G. canescens* F.J. Herm., *G. clandestina* Wendl., *G. curvata* Tind., *G. cyrtoloba* Tind., *G. falcata* Benth., *G. hirticaulis* Tind. and Craven, *G. lactovirens* Tind. and Craven, *G. latifolia* (Benth.) Newell and Hymowitz, *G. latrobeana* (Meissn.) Benth. and *G. microphylla* (Benth.) Tind.] are indigenous to Australia. All carry 2*n* = 40 chromosomes (diploid) except for *G. hirticaulis* which is tetraploid, 2*n* = 80.

"*Glycine tabacina* (Labill.) Benth. with 2*n* = 40 or 80 chromosomes, has been found in Australia, Taiwan, south Pacific Islands (New Caledonia, Fiji, Tonga, Vanuatu, Niue) and west central Pacific Islands (Mariana, Ryukyu). All accessions of *G. tabacina* collected outside of Australia are tetraploid (2*n* = 80) and even within Australia, tetraploids predominate over diploid forms. *Glycine tomentella* Hayata has been found in Australia (2*n* = 38, 40, 78, or 80), Papua New Guinea (2*n* = 40, 78 or 80), Indonesia (2*n* = 80), Philippines (2*n* = 80), and Taiwan (2*n* = 80). Singh et al. (1987, 1989) demonstrated that the complexes of *G. tabacina* and *G. tomentella* evolved through allopolyploidization in Australia."

"The soybean was first introduced to North America in 1765 by Samuel Bowen, a seaman employed by the East India Company. Bowen brought soybean from China via London to Greenwich, his residence in the province of Georgia. Situated a few kilometers east of Savannah, the 180 ha of Greenwich (now a cemetery) became the center of his farming and manufacturing enterprises.

"By the late 1850s, soybean was evaluated for forage potential by many farmers throughout the USA (Hymowitz, 1987). However, the scientific approach for evaluating the crop had to wait until the emergence of the agricultural experiment stations at land grant institutions during the latter part of the nineteenth century."

Table 9-1 (p. 154-57) shows "Ancestral cultivars and their occurrence in pedigrees of U.S.- Canadian publicly developed grain-type soybean cultivars (excluding backcross-developed isolines covered in Table 3). Part A of this table is a summary by maturity group and part B is a summary by decade of release. Each part is divided into number of descendant cultivars, northern ancestors, southern ancestors, ancestors chosen for pest resistance, other, and number of ancestral cultivars. The ten most important northern ancestors (in descending order of importance with the number of occurrences in pedigrees in parentheses) are: Mandarin (143), Manchu (121), Richland (119), A.K. (108), Dunfield (83), Mukden (73), No. 171 (30), Pakota (27), L37-1355 (25), and Manitoba Brown (14). The 13 most important southern ancestors are: CNS (118), Tokyo (109), PI54610 (108), S-100 (82), Roanoke (42), Haberlandt (40), Arksoy (40), Palmetto (34), Biloxi (9), PI 60406 (7), Ototan (7), Laredo (4), Mammoth Yellow (5).

Table 9-2 (p. 158-59) shows the "Origins of major ancestral cultivars of the 221 cultivars developed at public institutions in the USA and Canada." For each cultivar is given: Descendant cultivars, maturity group, year of introduction, country and locality of origin, and original cultivar name.

Table 9-3 (p. 161) shows "Sources of genes backcrossed into domestic public soybean cultivars." The named varieties are Kanro, Mukden, Arksoy, Higan, Kingwa, and CNS. All 8 of the most important northern cultivars originated in China. Of the 12 most important southern cultivars, 9 originated in China, 2 in Korea, and 2 or 3 in Japan. Address: Univ. of Illinois, Urbana, Illinois.

2043. Li, R.A.; Gupta, U.C. 1991. Extraction of soil boron for predicting its availability to plants. *Pedosphere* 1(2):137-144. [14 ref]*
Address: Dep. of Soil Science, Zhejiang Agricultural Univ., Hangzhou 310029, China.

2044. Soy City Foods vegetarian cookbook. 1991. Toronto, Ontario, Canada: The Golden Age Food, Ltd. 145 p. 28 cm.

• ***Summary:*** Contents: Dips, spreads & sauces. Soups & salads. Side dishes. Quick & easy recipes. Harvest dinner main dishes. Tempeh main dishes. Tofu main dishes. Other main dishes. Breakfast & brunch. Desserts. Holiday recipes. Glossary. Products made by Soy City Foods: Harvest dinner patties. Falafels. Grain tempeh. Tofu. All soybeans are organically grown, and certified by OCIA.

Some history: In 1975, The Golden Age Food Limited opened the Vegetarian Restaurant in downtown Toronto. In order to produce healthy soy-based products from

organically-grown soybeans, the restaurant created its own production facility, Soy City Foods. Address: 2847 Dundas Street West, Toronto, ONT M6P 1Y6, Canada. Phone: (416) 762-1257.

2045. Sunrise tofu cookbook. Revised edition. 1991. Vancouver, BC, Canada: Sunrise Markets Inc. 96 p. 22 cm. Spiral bound.
• ***Summary:*** Contents: Sunrise Markets Inc., What is tofu? Sunrise tofu. Cooking hints. Soups. Salads. Dressings and dips. Entrees. Desserts. Nutritional breakdown of Sunrise Tofu. Other Sunrise products. Glossary. Metric conversions. Substitutions and equivalents. Feedback.

"Sunrise Markets Inc. was founded in the early 1960s by Leslie Joe. With the help of his wife Susan and children, Leslie built Sunrise into Canada's largest producer of soy food products." The rear cover shows labels of 4 Sunrise tofu products. Other products are described on pages 91-92. The book contains "over 65 quick & easy recipes." Address: Sunrise Markets Inc., 729 Powell St., Vancouver, BC V6A 1H5, Canada.

2046. Tremblay, Yvon. 1991. La santé de la terre: le petit guide santé des anées 1990: le soya et ses dérivés (lait de soya, tempeh, miso, etc.) ansi que le sarrasin et le seitan [The health of the earth: the little health guide for 1990: soybeans and soyfoods (soymilk, tempeh, miso, etc.) as well as buckwheat and seitan]. Rosemère, Quebec, Canada: Presses Libre-choix. 157 p. Illust. by Mario Gailloux. 21 cm. [Fre]*
Address: Que.

2047. University of Illinois, Dep. of Agronomy. 1992. USDA Soybean Germplasm Collection: Introduced and old domestic varieties of the United States and Canada. Urbana, Illinois. 2 p. Jan. 21. Unpublished typescript. 28 cm.
• ***Summary:*** Lists 202 old domestic soybean varieties that are currently in the USDA Germplasm Collection. For each variety is given: Country of origin. Maturity group. Code letters for the following: Stem termination (indeterminate, semi-determinate, determinate), flower color, pubescence color, pubescence form, pubescence density, pod color, seed coat luster, seed coat color, hylum color, and other unique characteristics.

Across the top of page 1 is a horizontal table. In the top row are 13 maturity groups from 000 to X. In the second row are the number of varieties belonging to each maturity group, plus the total (202).

Note: Dr. Richard Bernard sent this document to Soyfoods Center in Dec. 1998. On it he wrote a "v" to the left of the following varieties, which he believes to be a large-seeded vegetable-type soybeans: Agate, Aoda, Bansei, Bansei [Ames, Iowa], Chusei, Easycook, Emperor, Etum, Fuji, Funk Delicious, Giant Green, Goku, Green and Black, Hahto, Hahto [Michigan], Higan, Hokkaido, Imperial, Jefferson, Jogun, Jogun [Ames, Iowa], Kanum [probably 1941-47], Kura, Osaya, Rokusun, Sac, Sanga, Sato, Shiro, Sousei, Tastee, Toku, Tortoise Egg, Waseda, Wolverine. Address: Univ. of Illinois, Urbana, Illinois.

2048. University of Illinois, Dep. of Agronomy. 1992. USDA Soybean Germplasm Collection: Private varieties (United States and Canada). Urbana, Illinois. 1 p. Jan. 21. Unpublished typescript. 28 cm.
• ***Summary:*** Lists 28 public soybean varieties that are currently in the USDA Germplasm Collection. For each variety is given: Year the variety was licensed or released. Maturity group. Code letters for the following: Stem termination (indeterminate, semi-determinate, determinate; all but one are indeterminate), flower color (purple or white), pubescence color (tawny, light tawny, or gray), pubescence form (erect, appressed, or semi-appressed), pubescence density (normal, sparse, semi-sparse, or semi-dense), pod color (black, brown, or tan), seed coat luster (dull, shiny, intermediate, or bloom), seed coat color (yellow, green, gray, black, brown, reddish brown, tan, imperfect black, or buff; may have prefix light or dark), hylum color (same abbreviations as seed coat), and other unique characteristics.

Across the top of page 1 is a horizontal table. In the top row are 13 maturity groups from 000 to X. In the second row are the number of varieties belonging to each maturity group, plus the total (28).

Note: One variety, Patterson Jade (1973) is a large-seeded vegetable-type soybean. Address: Univ. of Illinois, Urbana, Illinois.

2049. Larson, Donald W.; Rask, Norman. 1992. Industry note: Changing competitiveness in world soybean markets. *Agribusiness: An International Journal* 8(1):79-91. Jan. [11 ref]
• ***Summary:*** Contents: Introduction. World soybean production. Soybean and soybean product trade shares. Factors affecting competitiveness and trade: Costs of production, government policy. Conclusions. The GATT negotiations and the New Economic Order are based on the assumption of competitiveness in world markets. The landed cost of soybeans in Japan and at Rotterdam [Netherlands] favors Argentina and Brazil over the USA. The USA has steadily lost export market share for soybeans and soy products, from about 95% in early 1979 to 45% in 1990. During this time the Brazilian share has grown to 30% and the Argentine share to 16%. A fundamental shift from the export of soybeans to the export of more soybean products has occurred largely because of policies favoring product exports from Argentina and Brazil.

Tables show: (1) Soybean area harvested in six major producing countries in five groups of selected years from

1974 to 1990, and the percentage change during this time. The percentage changes are: Argentina +16,333%, Paraguay +10,000%, Brazil +96%, USA +20%, and China -43%. (2) Comparative soybean yields in the USA, Canada, Argentina, Brazil, Australia, and the world in 7 groups of years from 1975 to 1990. Canada usually has the highest yields. (3) Soybean production costs in Argentina ($127/acre), Brazil ($145/acre), and USA ($192/acre). (4) Production and marketing costs for soybeans landed in Rotterdam and Japan for Argentina, Brazil, and USA. In each port, Argentina has the lowest landed costs and USA has the highest.

Bar charts show: (1) Percentage shares of world soybean exports by major exporters (USA, EC-12, Argentina, Brazil, Paraguay, Others) 1980-1990. (2) Percentage shares of world soybean oil exports by major exporters (USA, EC-12, Argentina, Brazil, Others) 1980-1990. (3) Percentage shares of world soybean meal exports by major exporters (USA, EC-12, Argentina, Brazil, Others) 1980-1990. Address: Professors in the Dep. of Agricultural Economics and Rural Sociology, The Ohio State Univ.

2050. Roller, Ron. 1992. Work with and history of Eden Foods in Michigan. Part I. To 1980 (Interview). *SoyaScan Notes.* Feb. 25-26. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Ron was born in 1953 and he first met Mike Potter in 1961. The Potter and Roller families both lived in a northern suburb of Detroit. Ron had some friends who were friends of the people who ran the macrobiotic natural food store named Joyous Revival. That store was started by Carl Weinstein, Scott Halizon, and Howard Tannenbaum. Mike Potter worked in the store and soon became its manager. Through that connection, Mike started to travel to Ann Arbor to sell food at the free rock and roll concerts. Ron started to go with him (for fun), and they would cook rice and vegetables. A this time, Ron met Tim Redmond and Bill Bolduc. At age 15, through Mike's influence and interest in macrobiotics, Ron began to eat rice and vegetables as part of his daily diet.

Ron's sister and Mike had taken a trip to visit Muramoto-sensei at Miramichi, near Fort Bragg, California. At age 16, Ron attended a macrobiotic summer camp for a few weeks there. That was his first educational contact with macrobiotics.

In early 1971, while Mike was working at Joyous Revival, he was married. A little later that year he moved to Ann Arbor and began working at the Eden Foods retail store. Several years later Ron moved to Ann Arbor. In the fall of 1972 Ron began to work part-time for Eden Foods while he was going to school at Eastern Michigan University at Ypsilanti, studying biology and chemistry. His first job was to get the store at 330 Maynard Street ready to move into–painting, building grain bins and shelves, etc. Ron worked part time at Maynard St. in the deli, stocking shelves, etc. Many of the other employees also worked part-time.

Ron dropped out of the University and began to work full-time for Eden Foods when the company moved out of the Quonset hut and into the warehouse (shared with Midwest Natural) on Ann Street. He now began to work in the wholesale operation. After a 10-month leave of absence doing woodworking in the suburbs of Detroit, Ron returned before the warehouse moved to Platt Road; he helped with that move in the spring of 1974. When Mike Gordon, Eden's buyer at Platt Rd., decided to go back to school, Ron stepped into his job. It seemed like a very big responsibility since the company now had annual sales of about $1.5 million.

In 1976 Ron (age 23) took his first trip to China and Japan; he traveled with Mike Potter, who had taken his first trip there in 1973 or 1974. 23They also visited Muso in Japan. Later Ron made several trips to China and Japan by himself. From 1976 until the fire in 1979, Eden was doing more business with China than with Japan. The main Chinese imports were ginseng (the most important), nigari, azuki beans, Chinese medicinal herbs, tea, bamboo cookware, arrowroot flour, etc. Ben Zarcot of Fmali Herbs in California was also a big importer of ginseng from China.

After the move to Platt Rd., Eden's wholesale business (selling to natural/health food stores) continued to expand very rapidly. At that time, the full-line "super-distributors" came into being: Midwest Natural Foods, Health Food Inc. in Chicago, Tree of Life, etc. These companies, which tried to carry almost every product the industry offers, increased the number of products they carried to more than 2,000 from only several hundred, in order to provide natural/ health food retail stores with "one-stop shopping" Many of these products were ones that Eden refused, on principle, to carry. Erewhon later tried to become a super-distributor and it was a major cause of Erewhon's downfall.

Eden now started to sell a few products Eden brand to other distributors–especially their herbs imported from China, but also commodities such as nigari, bulk soybeans, etc. Their first customer was Gene Newman of Manna Foods, Inc., in Scarborough, Ontario, Canada. For a while Eden sold truckloads of Michigan-grown soybeans to tofu makers such as Nasoya. That business gradually fell off as tofu makers cultivated local sources for their soybeans.

Ron introduced Cliff Adler into Eden Foods. In the summer of 1976 Cliff started to work at Eden and invested some money in the company by buying shares. He had a lot talent in the area of sales–he was a real go-getter in marketing–and he soon made many close friends in the company.

At some point, probably shortly after the fire, a number of employees got stock in Eden Foods, including Ron

Roller, Bill Swaney, Mark Cook, and several others who left the company before the move to Clinton.

In Nov. 1979, just before the fire, 55 people worked for Eden Foods, which had annual sales of about $4 million. Sales were growing and the company was distributing about 2,300 items as they tried to compete with the "super-distributors." Eden sold no refrigerated or frozen foods, and no dairy products. The company had two warehouses. The big one, about 12,000 square feet, held almost all the food, plus the mill, the main office, the roaster, and the packaging machines. The smaller one, 4,000 square feet located not far away, was a truck repair garage and storage place for mostly non-food items plus a bottling line and a little overflow food. The night of the fire, the big warehouse was as full as it had ever been. The fire burned for a week while Eden's employees watched. It totally destroyed the big warehouse and the offices, and everything in them, sparing only the smaller warehouse. The next day, all but 7 people had been laid off. There was nothing for them to do.

The remaining employees were Mike Potter, Tim Redmond, Cliff Adler, Ron Roller, Bill Swaney (warehouse manager), Chris Burnham (warehouse), and Bena Burda (sales). They cleared out the small warehouse, and trimmed their product line to about 300 items.

Within 2 weeks after the fire, operating out of the smaller warehouse that they were leasing, Eden was sending out food to customers. They contracted with People's Warehouse in Ann Arbor to mill the large amounts of flours (including soy flour) that Eden sold; a little later Quincy Milling in Quincy, Michigan, took over Eden's milling. Cash was very tight for along time, so there was little marketing or promotion. All 180 vendors to whom Eden owed money were put on a payment plan, and they were gradually paid off. The insurance company paid Eden only $100,000 quickly. The space was also so tight that inventory had to be moved out of the warehouse each day and moved back in each night. Then they rented some additional warehouse space on Phoenix Drive in Ann Arbor, 6-7 miles away. About a year after the fire, Eden bought an existing warehouse in Clinton, Michigan and moved in during 1980 to get more space. They set the mill back up. By now sales were increasing slowly, but they were still feeling the pressure of the "super-distributors," as products proliferated in the natural foods market. Continued. Address: President, American Soy Products, 1474 N. Woodland Dr., Saline, Michigan 48176. Phone: 313-429-2310.

2051. DeBona, Don. 1992. Miso in Europe (Interview). *SoyaScan Notes.* Feb. 29 and April 19. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Don has had 2-3 offers (though not serious enough) to go to Europe to build and run a miso factories. When a really serious offer for a major joint venture is made, backed by sufficient capital, he would like to do it. He would provide the production (and maybe the marketing) expertise. In about 1985 Don trained Jan Kerremans, a Belgian, from Lima Foods in the south of France, in how to make miso–after they had started and weren't doing very well. After that, Lima got their miso production under control, but then Jan left at about the same time that Lima Foods was sold–Don is not sure which came first. Jan was a minor partner in Lima Foods. The Gevaert family sold Lima in about 1987-88 to Vibec, a consortium in Canada. At that time Lima had a lot of financial problems. Then in about 1989 Lima was purchased from the Canadian company by Euronature, a large France-based international food company. Lima is presently doing well, and their traditional high standards of food quality are completely supported by Euronature. Mark Callebert is the manager of Lima; Pierre Gevaert no longer owns any part of Lima and is no longer active with the company. Lima is no longer making miso at their old mill on a river in the south of France. Lima also made rice cakes and ground their sea salt at that old mill. This mill was the Gevaert's personal getaway and farmhouse, and he thinks they kept it when they first sold Lima, and no longer process food there. The Lima rice cakes may now be made in Belgium. Don thinks Lima Foods is now stronger than they were 5 years ago. Great Eastern Sun was the first company to import Lima's miso into America, starting in about 1984, and they were the sole importer for about 18 months until Lima appointed Eden as their exclusive U.S. agent. Don's current contact at Lima Foods is Mark Callebert. Don buys a lot of their salt in containers, directly from Europe, but he has to run the money and paperwork through Eden Foods. Don has exported several containers of miso to Europe through Sjon Welters' wife's brother, Adelbert, who used to work with Manna Foods in the Netherlands. He has also exported some to Erika Lemberger of EuroHealth. Bernard Faber also wants import Don's miso. After the Chernobyl nuclear disaster, Mitoku's sales of miso to Europe reached a new high, from which they have since dropped.

There is currently no major miso manufacturer in Europe. There is a small miso plant in Bristol, England named Source Foods, founded and run by Paul Chaplin, who Don trained at American Miso Co. for about 2 months. Chris at Mitoku recently told Don that Italy has recently become Mitoku's biggest market for natural food products in Europe.

In short, there is great potential for miso in Europe, including Eastern Europe, although the political instability of Eastern Europe makes for a very risky financial environment there. Its a high risk, high gain situation. Address: General Manager, American Miso Co., Route 3, Box 541, Rutherfordton, North Carolina 28139. Phone: 704-287-2940.

2052. *Agri-Book Magazine (Exeter, ONT, Canada).*1992. Beans in Canada. 18(4):1-36. Feb.
• ***Summary:*** This entire issue is about soybeans in Canada, with emphasis on soybean production. Articles include: Crop management: The bean counter. Higher yields from sub-irrigation. Marketing. The Northrop King commitment. Bean diseases and defences. Soyboard (OSGMB) activities: Beans, automobiles and genetic taxi-cabs. Ad by Soy City Foods offering to pay top dollar for organically grown soybeans and teach farmers how to grows such beans (p. 21). Reducing the tillage cost. Variety performance key to choice. Inoculation with bacteria. Meeting the challenge of weed control. Ad for Nitragin inoculants.

2053. Kushi, Michio. 1992. Introduction to *Culinary Treasures of Japan,* by John and Jan Belleme. 16 p. Jan. Unpublished manuscript.
• ***Summary:*** This manuscript, which was published in a condensed form in the actual book, tells the story of Mitoku and their work to export traditional Japanese natural foods to the Western world. Michio Kushi was instrumental in getting Mr. Akiyoshi Kazama involved in this work. Mr. Kushi, who became a World Federalist after World War II, came to the U.S. in Nov. 1949 to study at Columbia University. He continuously sought ways of establishing world peace, and increasingly came to believe that a proper diet is the basis for health, happiness, and peace.

In April 1966 the author's wife, Aveline, opened a small store named Erewhon in Boston. Michio began to search for a Japanese source for foods that Erewhon would sell. He was introduced to Mr. Kazama (who lived in Tokyo) through a Japanese friend, Mr. Obayashi, who resided at that time in New York City. Michio felt that Mr. Kazama understood his desire for foods of high quality. So Mr. Kazama "began his search for food producers and manufacturers who were sincere and willing to supply the kind of quality we requested. I know that for him, at that time, it was a great gamble. It was also a painstaking and slow step-by-step process."

Mr. Kazama was born on 1 Feb. 1930 in Yamanashi prefecture. He graduated from Waseda University in Tokyo, then was selected to study business in the United States. After arriving in Chicago, Illinois, he was drafted by the U.S. government to serve in the American Army in Korea and in Japan from 1956 to 1958. Upon his return to Japan, he settled in Tokyo where he became an import agent for a German company dealing in optics and electronics. After the Kushis contacted him, he became involved in the emerging natural food business. [He founded a company named Mitoku. Mi = Michio. To = Tomoko (Aveline's given name in Japanese). Ku = Kushi].

In 1968 Mr. Kazama made his first shipment of Japanese natural foods to Erewhon; the order was worth $3,000. The Kushis first met Mr. Kazama in Boston in 1970. Over the years, the volume of Mitoku's exports steadily grew, and expanded to Europe, Australia, and the Middle East. Today Mitoku ships its products to about 35 countries. Approximately 40% of Mitoku's exports go to America, 40% to Europe, and 20% to Australia and other regions. Annual sales are about $10 million. Among the major suppliers are Sendai Miso Shoyu Co. Ltd., Hatcho Miso Co. Ltd., Hagoromo Miso, Ltd., Hanamaruki Miso Co. Ltd, San Iku Foods Co. Ltd.

Distributors of Mitoku's products include the following: In the USA: Westbrae Natural Foods Inc., Great Eastern Sun Inc., U.S. Mills Inc., Tree of Life Inc., and Shojin Natural Foods (Hawaii). In Canada: Koyo Foods Inc., Flora Distributors Ltd., and Timbuktu. In Costa Rica: Distribuidora de Productos Macrobioticos S.A. In England: Sunwheel Foods Ltd, Clearspring Natural Grocer, Meridian Foods Ltd. In France: Celnat, Tama. In Belgium: Lima N.V. In the United Arab Emirates: Emirates Trading & Marketing Est. In South Africa: Key Health. In Austria: Naturkostladen, Lebenszeichen. In Switzerland: S'lotusbluemli, Terrasana, Futonhaus. In Sweden: Kung Markatta. In Norway: Alternative Import. In Finland: Makro Bios. In Portugal: Armazens Da Matinha. In Spain: Kunga. In Italy: La Finestra Sul Cielo, Probios S.R.L., Dalla Terra al Cielo, Solo Natura. In Israel: Tivoli Ltd. In Australia: Pureharvest. In New Zealand: Enso. In Singapore: Nature's Best. In Yugoslavia: General Export. In Japan: Seibu Department Stores Ltd., Tokyu Department Stores Ltd. Among the countries reached indirectly through trans-shipment are Hungary, reached through Austria, various South American countries reached through the United States, and other countries such as Poland, Czechoslovakia, Iceland, Andorra, Ireland and the Caribbean Islands."

As Mitoku developed its international operations, Mr. Kazama hired many students from Western countries, including Blake Rankin (USA), Ferro Ledvinka (Italy), Christopher Geoffrey Dawson (New Zealand, starting 1979), Robbie Swinnerton (England), Terrie Adams (USA), and Michelle Harbroun (France).

"For the past 10 years, Mitoku has echoed and supported the macrobiotic perspective with its motto 'Isshoku-Dogen.' These words, though they have been forgotten in the last few centuries by the very people in the health care field who should remember them well, mean literally 'medicine and food have the same source,' and can be translated as 'food *is* medicine.' This saying has been used and known as part of the ancestral heritage of wisdom transmitted from generation to generation for several thousand years in Oriental countries such as China, Korea and Japan.

"In an attempt to preserve Japanese traditions, Japan has instituted a 'Living Treasures' program granting official recognition and support to [living masters in] various cultural areas such as theater, music, dance, sculpture,

carpentry, weaving... and arts and crafts. Ironically, though, Japan has not granted the same official recognition to its traditional methods of food processing and production in spite of the fact that increasingly large numbers of people throughout the world are now appreciating traditionally processed Japanese food products and have become aware of their important health benefits. The Japanese traditional arts of producing miso, soysauce, tofu, natto, amazake, rice vinegar, sake, mirin, condiments and pickles as well as cooking methods and preparation are unique among the culinary practices of the world... These foods are also works of art... It is my hope and recommendation that official recognition and support be granted by the 'Living Treasures of Japan' to those who have dedicated their life to the traditional art of food production and processing in spite of the hardships and commercial disadvantages they are compelled to face in business competition and present-day economical conditions." Address: 62 Buckminster Rd., Brookline, Massachusetts 02146.

2054. *Globe & Mail (Toronto, ONT, Canada).*1992. Maple Leaf Foods concludes sale. March 21.
• ***Summary:*** "Maple Leaf Foods Inc. of Toronto has signed a final agreement to sell its edible oils division to CanAmera Foods, a joint venture company formed between Central Soya of Canada Ltd. and CSP Foods Ltd., for about $105-million in cash... It said the division has annual sales of about $250-million, has edible oil refineries in Toronto, Montreal, and Wainwright, Alberta, an oil seed crushing business in Fort Saskatchewan, Alberta, and a 50-per-cent ownership in Prairie Margarine Inc. of Edmonton" [Alberta]. Address: Canada.

2055. Weissman, John. 1992. Pioneering work with seitan, Wheatmeat, and Tan Pops in America, mid-1976 to 1992 (Interview). *SoyaScan Notes.* March 31. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Continued: In the fall of 1976 John formally founded the Vegetable Protein Company, registered with the city of Cambridge, and moved his operation out of his home into a commercial shop in Central Square at 140 River St. in Cambridge. Robert Allen left the company to begin a new career in the field of men's clothing. In 1976-77 John tried to get a trademark for Wheatmeat but was unable to because I.T.T. (Wonderbread) owned the trademark for a bread product. With Tan Pops as the main cash product from 1976-1978, the business became a real commercial business and began to grow. Selling as many as 85 Tan Pops a day at Erewhon alone, he began to earn a modest living For the first time, John began to use machines to help him in making his products. In 1977 he developed a portion-control method for the Tan Pops, running the seitan through a meat grinder, and forming them into cylinders, like a fat sausage, rather than the former slabs. John also began to experiment with new ingredients in the Wheatmeat and Tan Pops–such as vital wheat gluten, which he purchased from Ogilvie Ltd. in Montreal, Quebec, Canada. Other ingredients used included oat bran and oat flour mixed with wheat, whole toasted soy flour. The formula was constantly changing. At one point the main ingredients in the Tan Pop were vital wheat gluten and whole wheat flour. Neither Wheatmeat or Tan Pops were ever made entirely from vital wheat gluten.

In addition to the Wheatmeat Tan Pop, John developed and made a Tofu Pop, introducing it in the spring of 1977. He bought squares of plain pressed tofu (3 inches on a side and 3/4 inch thick) from a Chinese retail food store in Boston's Chinatown–he does not recall the company's name and he is not sure if they made the tofu or bought it from elsewhere. Later he bought tofu from Yah Kee, a Chinese tofu maker. He skewered the pressed tofu squares, coated them with his dry flour mix and corn batter, and deep-fried them. He first sold these at the very first Bread & Circus natural food store purchased by Anthony Harnett in Brookline. The product was introduced just after Anthony bought the store–but it was discontinued after a month or so, because it sold slowly; the unflavored tofu was too bland.

One day in the spring of 1979 he realized that deep-frying was unhealthy, and that day he and an employee moved his Pitco deep-fryer down to the basement, thus starting the "Vegetable Protein Museum of Natural History"–and stopped making Tan Pops. At that point he reformulated the Solar Burgers by adding TVP (they were made from a mixture of seitan and soy in various forms, incl. soynuts and TVP). He also made a TVP chili, which he thinks was called Vegetarian Chili.

In about 1978-79 John introduced another new product to salad bars around Boston. Named Smoky Soy Bits, it was a combination of TVP and gluten (produced by Ogilvie Ltd. in Canada) made into bacon-like bits, but without hydrogenated oils or salt (he used tamari instead). It was an "all natural" product–to the extent that TVP is natural.

In Nov. 1980 John introduced Weissman's Original Tofu Sausage, which tasted like bologna. A 6-ounce mixture of spices and tofu in a cellulose casing, it was cooked in a smokehouse. His company made it for the first 4 years and it eventually became his best-selling item. As its popularity increased, he phased out retail sales of Wheatmeat and Solar Burgers, and sold these Tofu Sausages to restaurants in bulk. After this period he invented only tofu products.

In 1983 John invented Pasta Pals, a tofu-gluten meatball. He discontinued it when Lipton Tea Inc. brought the trademark from him in late 1984. Lipton still owns the registered trademark.

In May 1984 John had to leave his food plant at 140 River Street in Cambridge. So he arranged with Michael Cohen to make the Tofu Sausage at his plant in Greenfield,

Massachusetts. This was disastrous for John, since the product's new poor quality almost ended any reputation it had left in the marketplace. But it was quite an education for John. In January 1985 he took back the product and began making it for himself again.

In the fall of 1984 John arranged with Ademar Reis, owner of Season's Harvest (a sandwich maker who was John's first customer for bulk-packed Solar Burgers in 1976) to have the Solar Burger made at Ademar's shop. John also wanted him to make Smoky Soy Bits and showed him how. Reis made the products for John briefly in late 1984, however this situation did not work out for John either. But it did for Ademar, who to this day makes soy "bacon" after the manner John showed him, using textured soy flour or concentrate, and flavorings similar to or the same as those from raw material sources which John supplied to him. Reis now also makes a tofu meatball.

In 1985 John changed the company name to VegPro. He continued to make Solar Burgers and Wheatmeat, but from then on he only invented and worked on tofu products. In about 1986, based on the success of his Weissman's Original Tofu Sausage (6 oz), he introduced a new Tofu Savvy line of products (starting with a 3-lb Boloney), each in a 2-3 lb loaf shape like a meatloaf, and sold to delis. He buys his tofu from a tofu maker in Massachusetts. With names like Tofu Salsa Savvy (bulgur and tofu), Curry (with brown rice and veggies), Spice-Seed, and Boloney, these are offshoots of the tofu sausage, but they involve a highly proprietary process that John has developed. Delis sell the sliced loaves for use in sandwiches.

In 1990 he began to test market (in one Bread & Circus store) two new types of tofu franks: Good Dogs, and Bad Good Dogs (hot & spicy), each with a registered trademark. They were only on the market for 1-2 months because they didn't keep well–but he still feels they are excellent products. He made them himself because he doesn't like to have them made on meat processing machines.

Today John works as a very creative solo craftsman and a chef, still making a line of food products himself, including the Weissman's Original Tofu Sausage (6 oz), and the Tofu Savvy line. His products are sold at about 10 outlets, including five Bread & Circus stores, plus some co-ops, restaurants, and health-food stores.

He no longer makes Solar Burgers, but someone from California is making another product with that name.

On 19 April 1988 John received federal trademark #1,485,401 for Wheatmeat. He knows of people in Utah and Pennsylvania who are using his registered trademark, Wheatmeat, illegally.

John, now age 43, is a musician, selling foods he has developed, and writing a novel. He is almost a vegetarian, but he eats some fish. Address: VegPro Co., 133 Nottinghill Rd., Brighton, Massachusetts 02135.

2056. *SoyaCow Newsletter (Ottawa, Canada).*1992. Child Haven sends six SoyaCows to India with CIDA's help. 1(1):1. Jan/March.
• ***Summary:*** "Child Haven International of Maxville, Ontario, has purchased six SoyaCow systems for their Soya Milk Cottage Industry Project in India. The project is supported by the Canadian International Development Agency and charitable donations from the public. The machines are reported to be running well without problem. Unskilled women with minimum training are able to operate the machines and make soya milk, tofu, soya yogurt, okara, etc., and many delicious and nutritious products."

A photo shows Child Haven's directors, Fred and Bonnie Cappuccino, as they take delivery of six SoyaCows from ProSoya's president, Rashmi Gupta [Raj Gupta's wife]. The SoyaCows are arranged on two handsome stands. Below each is a stainless steel tofu forming box.

Note: As of May 1999 Child Haven is located at: R.R. #1, Maxville, Ontario, K0C 1T0, Canada. Phone: 613-527-2829. Attn: Bonnie and Fred Cappuccino.

2057. *SoyaCow Newsletter (Ottawa, Canada).*1992. SoyaCows to Malawi and Guatemala. 1(1):1. Jan/March.
• ***Summary:*** "Ekwendeni Hospital in Malawi (Africa) has ordered a SoyaCow with electric boiler. Another SoyaCow system has been purchased by ADEEC in Guatemala through Plenty Canada. The machine will be used in a project to establish the feasibility of the SoyaCow concept and to train people in the operation of the machine."

2058. *SoyaCow Newsletter (Ottawa, Canada).*1992. Two stage grinder improves yield of Alexandria SoyaCow. 1(1):1. Jan/March.
• ***Summary:*** "The SoyaCow system operational for over six months at the Candlestick restaurant in Alexandria, Ontario, has been upgraded to use the same two stage grinder as used in the latest SoyaCow systems. This has resulted in a dramatic increase in the soya milk yield and reduced the soya bean grinding time."

2059. *SoyaCow Newsletter.*1992—. Serial/periodical. Ottawa, Canada. The Soya Cow Centre. Vol. 1, No. 1. Jan/March 1992. Editors: Raj Gupta and Grant Wood.
• ***Summary:*** The SoyaCow, invented by Indian scientist Raj Gupta, makes high-quality soymilk for low cost. Vol. 1, No. 1 was actually published in April 1992. Talk with Brian Harrigan of ProSoya in Ottawa. 1999. May 11. The SoyaCow Newsletter was discontinued about 18 months ago, due to lack of time. Address: 9 Veery Lane, Ottawa K1J 8X4, Canada.

2060. DeBona, Don; Callebert, Mark. 1992. Update on Lima Foods and Euronature (Interview). *SoyaScan Notes.*

April 19 and 23. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** The following is based on a talk that Don had in North Carolina with Mark Callebert, general manager of Lima Foods in Belgium, then a direct interview with Mark in Belgium on April 23, followed by a letter from Mark on June 16 with exact dates. Mark has worked with Lima for about 16 years (since 1 Sept. 1975).

The Gevaert family sold Lima in May 1988 to a company named Vibec in Quebec, Canada. Vibec was a construction company (they were not involved with foods) and the owners spoke French. The contact with Vibec was made via Henry Lucy, a Frenchman who was on the Lima board of directors (and also a shareholder), who was a friend of Michio Kushi (Michio had healed Henry's wife), who had quite a lot of money, and who also had a construction company in Africa. Michio was also on the Lima board for a while. Vibec purchased Lima as a way of getting involved in the new European market without borders which will begin at the end of 1993. However Pierre Gevaert and his son, Daniel (who was production manager at Lima, France), kept their property and mill in the south of France where Lima used to make miso. At that time Lima had a lot of financial problems. Pierre Gevaert owned the majority of the stock in Lima, and his relatives (mostly his brothers and sisters) owned the rest. Mark and Frank Stevens (Pierre Gevaert's son-in-law) played key roles in negotiating the deal, then stayed on to run the company. On 22 April 1989 Lima purchased Jonathan P.V.B.A., which is still a fully owned subsidiary (daughter company) of Lima. But the marriage of Lima (a Belgian natural foods company) and Vibec (a Canadian construction company) was a strange one, and for that reason it didn't last long.

Then in September 1989 Lima was purchased from Vibec by Euronature (pronounced as in French, YU-ro na-TYUR), a large international food company headquartered in Paris, France. Euronature is a holding company that was founded in June 1989; the president of Euronature was able to raise a lot of money from banks and insurance companies to create the holding company. Frank Stevens was killed in an automobile accident in Nov. 1989.

Lima is presently doing well, is financially very solid, and the future looks bright. Lima has sales of about $15 million a year, but the company is not yet profitable. Mark feels that they will become profitable when sales reach about $17 million/year. Their traditional high standards of food quality are completely supported by Euronature. Pierre Gevaert (born 21 July 1928 now in his mid-60s) no longer owns any part of Lima and neither he nor his son have been active with the company since it was purchased by Euronature. Pierre lives in the south of France and works on his organic farm there. Lima is still headquartered at Sint-Martens-Latem in Belgium.

Euronature has 4 major divisions: (1) Natural foods division, including Lima Foods, Lima's bakery and muesli factory, and several natural foods distribution companies; (2) Gourmet division; (3) Seafoods division (Euronature's largest), with branches scattered throughout Europe; (4) French specialty foods division.

Lima's largest product lines are their muesli products (which they make at their own plant), their bakery (located 6 km from Sint-Martens-Latem in Belgium), their sesame division (they make tahini and gomashio, and were one of the first to grow sesame seeds organically), and their tomato canning division (located in the south of France, it makes tomato sauces and ratatouille). Lima's leading soyfood products are tamari, shoyu, organic miso, their soymilk products (including regular and Mocha-Soy soymilk, and Soy Desserts, all made by Alpro in Belgium), fresh tofu salads, and tofu in cans and jars. Imports from Japan are now quite small, representing only about 10% of Lima's total sales. Although Lima no longer makes its own miso, it still sells quite a lot of miso–much of it from past batches made by Jan Kerremans in the south of France. Lima is now looking for other sources, including American Miso Co. in North Carolina. Jan now works part time as a consultant for Alpro in Belgium.

Jonathan's main products are now seitan and tofu (both fresh [pasteurized] and in jars), plus many second-generation products made from seitan and tofu, such as fresh tofu spreads, tofu pates, seitan brochettes, etc. Jonathan makes all of the seitan, tofu, and related products sold by Lima. Address: General Manager, American Miso Co., Route 3, Box 541, Rutherfordton, North Carolina 28139. Phone: 704-287-2940.

2061. Kennedy, Mike. 1992. Plant to transform soybean oil to fuel will be built in KCK [Kansas City, Kansas]. *Kansas City Star (Missouri).* April 27. p. B2. Metropolitan section.

• ***Summary:*** At Kansas City's Earth Day celebration, Sunday [April 26], at Penn Valley Park, Interchem Industries, Inc., based in Leawood, Kansas, announced that it plans to make diesel fuel from soybean oil in Kansas City, Kansas.

Bill Ayres, executive vice president of Interchem, said the "biodiesel" fuel creates less pollution when burned and requires no engine modification. "You just pour it in your tank," and drive away. With Ayres were Thomas Verry, director of field services for the Missouri Soybean Merchandising Council [MSMC], and Vince Schoemel, mayor of St. Louis.

Schoemel, a Democrat, who is running for governor of Missouri, said he strongly supports use of alternative fuels to reduce pollution and reliance on foreign energy, and to create jobs.

Ayres said Interchem planned to break ground Friday for the plant, which will have a capacity of 3 million gallons

per year of "soy diesel fuel." It will be built near Third and Lyons streets in Kansas City, Kansas. In January [1992], Interchem opened a demonstration plant in Kansas City, Kansas, that produces the soybean fuel. The Missouri Soybean Merchandising Council has provided funding to do research on the soybean diesel fuel.

Interchem's biodiesel sells for about $1.50 per gallon, compared with about $1.00 for regular diesel. Ayres added, that as the federal government begins enforcing more stringent clean air standards, biodiesel could become more economical.

Verry (of MSMC) said that converting soybean oil into diesel fuel is a way to reduce the glut of oil that is now on the market. So, farmers are excited about this project.

In 1989, Interchem changed its name from Pyrotech Inc. Besides its Leawood office, Interchem has an office in Vancouver, British Columbia, Canada.

2062. **Product Name:** Yves Veggie Cuisine Burger Burgers (Fat Free–Contains No Meat).
**Manufacturer's Name:** Yves Veggie Cuisine.
**Manufacturer's Address:** 1138 East Georgia Street, Vancouver V6A 2A8, B.C., Canada. Phone: 604-251-1345.
**Date of Introduction:** 1992. April.
**Ingredients:** Water, onions, textured soy protein, wheat gluten, soy protein isolate, brown rice syrup solids, pea fiber, onion powder, malt extract, yeast extract, salt, tomato paste, Dijon mustard, rice flour, natural flavor, vegetable gums.
**Wt/Vol., Packaging, Price:** 2 patties in 6 oz (170 gm) paperboard box.
**How Stored:** Refrigerated or frozen.
**Nutrition:** Per patty (85 gm): Calories 83, calories from fat 0, total fat 0 gm (0% daily value; saturated fat 0.0 gm), cholesterol 0 mg, sodium 380 mg (16%), total carbohydrate 9 gm (dietary fiber 4 gm [15%], sugars 6 gm), protein 11 gm. Calcium 6%, iron 9%, vitamin C 2%. Percent daily values are based on a 2,000 calorie diet.
**New Product–Documentation:** Ad (color, 2/3 page) in *Natural Foods Merchandiser.* 1992. April. p. 94. "Yves Veggie Cuisine." Shows packages of Veggie Wieners and Burger Burgers.

Product with Label purchased at Safeway in Lafayette, California. 1996. June. 5 by 3½ by 1 inch paperboard sleeve. Red, yellow, and black on white. Photo on front panel of a burger with grill marks atop lettuce and tomatoes below a sesame bun. "Contains no meat. Fat free."

2063. Adlercreutz, Herman; Hämäläinen, E.; Gorbach, S.; Goldin, B. 1992. Dietary phyto-oestrogens and the menopause in Japan (Letter to the editor). *Lancet* 339(8803):1233. May 16. [7 ref]
• ***Summary:*** The authors of this letter theorize that diet is a possible reason for the differences in menopause symptoms between Japanese and American women. The scientists had studied the phyto-estrogen excretion of a small sample of Japanese women with mean age 50 eating "a traditional Japanese low-fat diet". Phyto-estrogens come from plants; when consumed, they act like endogenous estrogens, the estrogens produced by the body. Menopausal symptoms are associated with a drop in a woman's production of endogenous estrogens.

The Japanese women excreted up to 1,000 times more phyto-estrogens than American women consuming a Western diet. This result was a positive finding for the Japanese subjects; the scientists attributed the high levels with high intake of soyfoods, which are rich in phyto-estrogens.

Although the scientists did not specifically study the effects of phyto-estrogens on menopause, they believe that soyfoods may act like a hormone replacement "pill", closing the gap created when endogenous estrogen levels drop during menopause.

Note: According to Peter Golbitz of Soyatech, Japanese eat an average of 26 pounds of soyfoods per person each year, while Americans eat only about 4 pounds. Address: 1-2. Dep. of Clinical Chemistry, Univ. of Helsinki, SF-00290 Helsinki, Finland; 3-4. Nutrition/Infection Unit, Dep. of Community Health, Tufts Univ. School of Medicine, Boston, Massachusetts.

2064. *Ontario Export Soybeans (OSGMB).*1992. Ontario soya to Cuba? 5(2):2. May.
• ***Summary:*** Two members of the "Ontario Soybean Growers' Marketing Board visited Cuba on an export trade mission between March 1 to 8. During the week they visited a crushing plant, a farming enterprise, the Cuban Food Research Institute and had several meetings with officials from their import agency, Alimport..."

"The Ontario soybean industry has an immediate opportunity in soy-protein products of soy flour and textured vegetable protein." Address: Chatham, Ontario, Canada.

2065. Ontario Soybean Growers' Marketing Board. 1992. Soybean symposium scheduled for 1993 (News release). Chatham, Ontario, Canada. 1 p.
• ***Summary:*** "The Ontario Soybean Growers' Marketing Board will celebrate the 100th anniversary of soybean production in Canada by holding a Soybean Symposium from March 28th to 30th, 1993. The two-day event will feature international speakers, a trade show, educational displays and special events.

"The last soybean conference in Ontario was held in 1984. Next year's symposium will bring together representatives from every facet of the industry to discuss issues from market development to climatology, from world trends to innovative food products. The symposium will be

held in co-operation with industry stakeholders and government."

"In 1893, Canada started producing soybeans. Today Canadian farmers produce 53 million bushels of soybeans annually and export over 20% of that total.

"The conference will be held at the Constellation Hotel in Toronto... Further information is available by contacting the Ontario Soybean Growers' Marketing Board in Chatham, Ontario or by calling 519-352-7730." The conference is being organized by Ginty Jocius & Associates, Guelph, Ontario, Canada.

Note: The first three Canadian soybean conferences were held in April, May, and June of 1936. On 11-12 Sept. 1973 the Ontario Soya-Bean Growers' Marketing Board sponsored the Ontario Soybean Symposium at Ridgetown College of Agricultural Technology in Ontario. On 8 Jan. 1979 the Ontario Ministry of Agriculture sponsored a conference on Soybeans, Cereals, and Land Management, also at Ridgetown. Then on 18-20 March 1984 the Ontario Soya-Bean Growers' Marketing Board sponsored the largest Canadian soybean symposium to date, titled "Ontario Soybeans... A journey into the next century," held in Toronto.

Note: According to the April 1993 OSGMB Newsletter (p. 4), over 350 people attended this symposium. Address: Chatham, ONT, Canada.

2066. Bergh, Barbara. 1992. The Canadian oilseed processing sector: A profile. In: Statistics Canada. 1992. Grain Trade of Canada 1990-91. Ottawa, ONT, Canada: Statistics Canada. See p. 23-32. [Eng; Fre]

• ***Summary:*** Contents: Oilseed situation. Crushing industry. Vegetable oils. Vegetable oilmeals. Economic value of the industry. Policy issues and recommendations by the Canola Marketing Task Force. "The main oilseed crops produced in Canada are [in descending order of the amount produced], canola, soybeans, flaxseed and sunflower seed. There has been an almost continuous increase in the production of oilseeds since 1950, with the largest increase being in canola production which will reach a record 4.3 million tonnes in 1988/89. There was a record 1.3 million tonnes of soybeans produced in 1990/91. A bar chart shows the amount of Canada's four major oilseeds produced every 5 years from 1950 to 1990. "Only small amounts of oilseeds are imported into Canada, but significant amounts are exported. In 1990/91, 99% of canola exports went to Japan, while soybean exports were destined mainly for the U.S., Netherlands, Portugal, Hong Kong, Japan and Singapore."

One of Canada's three soybean crushing plants closed in 1991 causing a drop in soybean crush capacity from 3,700 to 2,500 tonnes per day. Of this, CanAmera Foods in Hamilton, Ontario, has 1,270 tonnes, and ADM Agri-Industries Ltd. [in Windsor, Ontario] has 1,250.

"The two major oilseeds processed in Canada are canola and soybeans, with small amounts of sunflower seed and flaxseed also being crushed. Canola is crushed mainly for its oil as its seed yields about 40% oil and 60% meal. Soybeans are crushed more for the meal since they yield about 78% meal and only 17.5% oil. Sunflower seed yields 42% oil and 35.5% meal, while flaxseed yields 34% oil and 63% meal...

"In 1990/91, 44% of the domestic canola crop was crushed, compared with 72% for soybeans, 70% for sunflower seed and 1% for flaxseed."

"In 1990/91, 0.8 million tons of crude vegetable oils were produced in Canada... Canola oil accounted for 74% of total vegetable oil production in Canada, followed by soybean oil at 21%, sunflower oil at 4% and linseed oil at 1%. In addition, approximately 25.0 thousand tonnes of corn oil are produced annually."

"Soybean meal is the major vegetable oilmeal used in Canada, accounting for 76% of the total oilmeal consumption in 1990/91. Canola meal is next, accounting for 22% of total domestic use, followed by sunflower and linseed meals which accounted for 1% or less." Soybean meal contains 48% protein, whereas canola meal contains only 36-37% protein; it contains more fiber than soybean meal and has less digestible energy.

As of 1 Jan. 1992, Canadian soybeans, crude soybean oil, soybean meal, canola seed, crude and refined canola oil and meal all have tariff-free access to the USA. Refined soybean oil will be duty free as of 1 Jan. 1995. Address: Market Analyst, Canadian Oilseed Processors Assoc., 1010-360 Main St., Winnipeg, Manitoba R3C 3Z3, Canada. Phone: 204-942-3408.

2067. *Ontario Soybean Growers' Marketing Board Newsletter.*1992. Soybeans in Canada: Beyond 100 years. June. p. 1.

• ***Summary:*** "On March 28th to 30th of 1993, the Ontario Soybean Growers' Marketing Board will celebrate the 100th anniversary of soybean production in Canada. A two-day Soybean Symposium will be held at the Regal Constellation Hotel in Toronto. The event will feature international speakers, a trade show, educational and historical displays and a variety of special events. Representatives from every facet of the soybean industry will be involved and topics such as market development, climatology, world trends and innovative food products will be discussed. The symposium will be held in co-operation with industry stakeholders and the federal and provincial governments." Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

2068. *Ontario Soybean Growers' Marketing Board Newsletter.*1992. Printed with soy ink. June. p. 2.

• ***Summary:*** "The Ontario Soybean Growers' Marketing Board has initiated the 'Soyseal' program in Canada. With the American Soybean Association permission the Soybean Board has modified the U.S. soyseal logo into a distinctive Canadian logo. The logo is to be used for non-food uses of soybean oil. Industrial applications such as soyoil inks, lubricants, emulsions and dust suppressants are just a few of the applications. The soyseal is distinct from the Soymark (featured in our last newsletter) but is meant for parallel applications in the non-food or industrial sector.

"The Board has already been approached for copies of the logo which will be displayed on product package labels printed with soyoil ink. Soyoil inks are environmentally friendly, less toxic and have numerous other beneficial aspects over petroleum-based inks. The Board is petitioning both levels of governments to formulate policies to have all their printed material done with soyoil ink.

"The logo will mostly appear in all black ink, as printed above, but some applications may have the maple leaf and oil droplet outlined in red." Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

2069. *SoyaCow Newsletter (Ottawa, Canada).*1992. CIDA funds Child Haven to buy seven more SoyaCows. 1(2):1. April/June.

• ***Summary:*** "Child Haven of Maxville, Ontario, has received funding from the Canadian International Development Agency in support of the IIIrd phase of their soymilk cottage industry project in India.

"... Child Haven have ordered seven complete SoyaCow WS-20S systems to add to their 9 systems purchased earlier. Each system is capable of producing about 15 litres of soymilk every half an hour using 1.5 kg soybeans."

Child Haven's project director for India is Hart Jansson. Phone: (613) 837-2235.

Note: The company name and address on the envelope in which this newsletter was sent is: "ProSoya Foods International Inc., 9 Veery Lane, Ottawa, Canada K1J 8X4."

2070. *SoyaCow Newsletter (Ottawa, Canada).*1992. Plenty Canada buys a SoyaCow. 1(2):1. April/June.

• ***Summary:*** "Plenty Canada has ordered a SoyaCow WS-20S system with electric steam generator for installation at their head office in Lanark, Ontario. According to Nancy McDermott, the machine will be used to give demonstrations and provide training to the people visiting Plenty from their projects around the world. The machine will also be accessible to local people for producing soyfoods for consumption and sale."

2071. Carroll, Jerry. 1992. Vegetable oil-fueled world cruise: Innovative sailboat to test new soybean diesel on 2½ year trip. *San Francisco Chronicle.* July 3. p. B3. People section.

• ***Summary:*** About Bryan Peterson and his Sunrider boat, which is a Canadian-made Zodiac with a rigid "V" fiberglass hull and inflatable buoyancy tubes which lets it dance lightly over the waves that other boats would have to plow through. The voyage is meant to tell the world about the benefits of "soy diesel," the fuel that will power Sunrider around the globe. Peterson has 90 sponsors, including the United Soybean Board (which represents 400,000 farmers), Interchem Industries of Leawood, Kansas (an alternative energy company founded 6 years ago), Earth Day International, the government of British Columbia, Canada. Interchem plans to deliver 25,000 gallons of "soybean diesel" fuel to the 228 ports where Peterson plans to land.

Bill Ayres of Interchem says: "'We started supplying the first soy diesel in small quantities and batches last August... We started off with a pickup truck at the University of Missouri.' Currently mass-transit systems in St. Louis and Kansas City, Missouri, are blending the new fuel with regular diesel fuel and testing it on buses.

Discusses Peterson's remarkable and diverse background and resumé. He now lives in Fairfield, Iowa, with his wife, Janice, who works for Maharishi International University. "Peterson himself has practiced transcendental meditation for 24 years and has taught it." 2½ years ago he started planning this trip in order to do something about the environment and something he would enjoy. A photo shows Peterson and the boat.

2072. Bernard, Richard L.; Nelson, R.J. 1992. Origins and pedigrees of public soybean varieties in the United States and Canada: 1987 to 1991–(1) Additions to Table 6; (2) Corrections and additional information; (3) Additions to Table 9; (4) Table updating USDA Soybean Germplasm Collection. *USDA Technical Bulletin* No. 1746. 11 p. July. [1 ref]

• ***Summary:*** These four unpublished photocopied documents are intended to update and make corrections in *USDA Technical Bulletin* No. 1746, issued in Oct. 1988.

Part (1), "Additions to Table 6," gives details about the following new varieties: Amcor 89, Archer (Developer: Iowa and Puerto Rico AES), Avery, Bass, Bell, Bert, Brim, Brock, Bryan, Buckshot 723, Burlison, Camp, Canatto, Chapman, Choska, Colquitt, Conrad, Cook, Cordell, Corsica, Crockett, Crowley, Delsoy 4210, Delsoy 4500, Delsoy 4710, Delsoy 4900, Dunbar, Edison, Elgin 87, Erie, Flyer, Glenwood, GR8836, GR8936, Hagood, Hamilton, Hardin 91, Haroson, Harovinton, Harper 87, Hartwig, Hayes, Hobbit 87, Howard, HP201, HP202, HP203, HP204, Hutcheson, IA1001, IA1002, IA1003, IA2001, IA2002, IA2003, IA2004, IA2005, IA2007, IA2009, IA2010 (Note: IA varieties are all from Iowa and Puerto Rico AES), IL1,

IL2 (Note: IL varieties are from the Illinois AES), Jack, Kasota, Kato, Kenwood, Kunitz, Lamar, Leslie, Linford, Lloyd, LN83-2356, LS201, LS301, Manokin, Maple Glen, Marcus, Merrimax, Minnatto, Narow M, Nattawa, Nattosan, Newton, Nile, OAC Dorado, OAC Eclipse, OAC Frontier, OAC Musca, OAC Shire, OAC Talbot, OAC Vision (Note: OAC varieties are all from the University of Guelph, Ontario, Canada), Padre, Pennyrile, Perrin, Pharaoh, Proto, RCAT Alliance, RCAT Angora, RCAT Persian (Note: RCAT varieties are from Ridgetown College of Agricultural Technology, Ridgetown, Ontario, Canada), Resnik, Rhodes, Sharkey, Spencer, Sprite 87, Spry, SS201, SS202, Stonewall, Sturdy, Thomas, Twiggs, Walters. Note: This is the earliest document seen (Aug. 1999) that mentions the soybean variety Merrimax.

Part (2), "Corrections and additional information," makes corrections in Table 3, most in the pedigree information (Improved Pelican, Lincoln, Pagoda) and Table 6 (Anoka, Acme {Canada} and Crest, Bradley, Chico, Custer, Sloan, Swift). Also contains a page titled "Comments on pedigrees." "The most common error we have found is the reversal of male and female. Since in soybean breeding it appears to make little if any difference, the cross A x B has sometimes been recorded B x A. Some breeders make no distinction in their records between reciprocal crosses. We have made some corrections but this error may still be present in some pedigrees."

Part (3) Additions to Table 9 gives new information about "Registrations of 1987 to 1991 public soybean varieties." The new varieties are: Amcor 89, Archer, Avery, Bell, Bryan, Burlison, Chapman, Colquitt, Conrad, Cordell, Crockett, Delsoy 4500, Delsoy 4900, Edison, Edison 87, Flyer, Glenwood, GR8836, GR8936, Hamilton, Harper 87, Hayes, Hobbit 87, HP201, HP202, HP203, HP204, Hutcheson, IL1, IL2, Jack, Kasota, Kato, Kenwood, Kunitz, Lamar, Linford, Lloyd, LN83-2356, LS201, LS301, Marcus, Minnatto, Newton, Padre, Pennyrile, Perrin, Proto, Resnik, Sharkey, Spencer, Sprite 87, SS201, SS202, Stonewall, Sturdy, Thomas, Twiggs, Walters.

For each variety is given the Registration Number and the citation for the registration in *Crop Science* (year, volume, and pages). Registration numbers above 273 carry the prefix "CV-". e.g., CV-274.

Additional information for varieties listed in Bulletin 1746, p. 62-67. Missing details are given for: Cartter, CN210, CN290, Corsoy 79, Fayette, Gnome 85, Hobbit, Hoyte, Pixie, Ripley, Sprite, TN4-86, Will, Williams 79, Williams 82.

(4) Table updating USDA Soybean Germplasm Collection. Vertical columns are 13 maturity groups from 000 to X, plus the total for that row. Horizontal rows are (with totals): Pre-1945 public cultivars (202), Post-1945 public cultivars (315), Private cultivars (28), Clark isolines (276), Harosoy isolines (119), Williams isolines (62), Other isolines (37), Genetic types (145), Germplasm releases (52), FC accessions *(G. max)* (90), PI accessions *(G. max)* (11,581), PI accessions *(G. soja)* (1,034), Column totals. The top 4 maturity groups in terms of number of total varieties are: IV (3,168), V (2,195), II (1,735) and III (1,544). The bottom 4 maturity groups in terms of number of total varieties are: IX (159), X (163), 000 (209) and VIII (362). Address: Univ. of Illinois. Urbana, Illinois.

2073. Statistics Canada, Agriculture Div. 1992. Agricultural profile of Prince Edward Island. Part 1. Ottawa, Ontario, Canada: Publications Division, Statistics Canada. 33 p. See p. 11. July. Catalogue 95-310. [Eng; Fre]
• ***Summary:*** According to Canada's agricultural census, in 1991 on Price Edward Island, 110 farms in 3 counties reported growing soybeans as follows: Queens County–55 farms grew soybeans on 3,340 acres (1,352 hectares); Kings County–26 farms grew soybeans on 1,671 acres (676 hectares); Prince County–29 farms grew soybeans on 866 acres (350 hectares). Address: Ottawa, Ontario, Canada.

2074. *Health Foods Business.*1992. Helping local rainforest. Aug. p. 63.
• ***Summary:*** "Sharon's Finest contributed $2,600 to the Sierra Club of Western Canada to help save the temperate Rainforests on Vancouver Island. The donation was made available through the 5% titheing policy from the Canadian sales of TofuRella. Sharon's donated $1,700 last year. On hand to receive the check from Sharon's Finest president Richard Rose was Lindsay Brown of the Sierra Club." A photo shows Richard Rose (with long hair) presenting the check to Lindsay Brown.

2075. *Ontario Soybean Growers' Marketing Board Newsletter.*1992. Crushers form new association. Aug. p. 3.
• ***Summary:*** "The Ontario Soybean Growers' Marketing Board congratulates the newly formed Canadian Oilseed Processors Association (COPA) as they begin operation in Winnipeg.

"COPA represents the common interests of crushers across Canada who process soybeans, canola, linseed and other oilseeds. Currently, there are four companies involved in the oilseed processing business in Canada, down from nine only a few years ago. These companies are ADM Agri-Industries, CanAmera Foods, Canbra foods and Northern Lite." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2076. Galloway, Gloria. 1992. Lifeless looking bean curd can soar to tasty heights. *Windsor Star (Essex County, Ontario, Canada).* Sept. 30.
• ***Summary:*** Jon Cloud runs two Toronto vegetarian restaurants and Soy City Foods, a soyfoods production and distribution company. Hugh McLean of Heatherton, Nova

Scotia, near Antigonish, produces more tofu than anyone else in the Maritime provinces–just 180 to 220 kg per week–in a tiny 2x3 meter room at the back of his family's house.

A photo shows 2 packages of tofu; one, named To-Fu-De-Light, looks like a pudding. It is almond flavored and has Chinese characters written on the package. Address: The Canadian Press.

2077. Agriculture Canada, National Grains Bureau. 1992. A study to compare the grain marketing systems in Ontario, Michigan and Ohio. Winnepeg, Manitoba, Canada. vi + 68 + 21 p. Sept. 28 cm. Spiral bound.
• ***Summary:*** This report was issued under the Grains 2000 program. Contents: Executive summary. 1. Introduction and background. 2. Production patterns. 3. Marketing patterns and trends. 4. Nature of the grain marketing industry. 5. Price trends and relationships. 6. Country grain elevator charges and discounts. 7. Grain elevator costs and performance. 8. Transportation cost comparison. 9. Competitiveness assessment overview. 10. Recommendations for the Ontario grain industry. Appendices: A. Canadian grades and standards. B. U.S. grades and standards. C. Posted board price data 1989-1991. D. Ontario Grain & Feed Dealers Association conversion tables. Address: Winnipeg, Manitoba, Canada.

2078. **Product Name:** La Soya: Authentic and Natural Soy Sauce of China.
**Manufacturer's Name:** Amasi International Inc. (Importer). Made in China.
**Manufacturer's Address:** 378, Isabey, Montreal, QUE H4T 1W1, Canada. Phone: 514-738-3000.
**Date of Introduction:** 1992. September.
**Ingredients:** Water, whole soybeans, whole wheat, sea salt.
**Wt/Vol., Packaging, Price:** 15 fl oz (450 ml) glass bottle or 2.64 U.S. gallons (10 liters) tin.
**How Stored:** Shelf stable.
**New Product–Documentation:** Leaflet from Natural Products Expo East. 1992. Sept. 11-13. Baltimore, Maryland. "The taste of a thousand seasons... La sauce aux mille saisons." This is an authentic Chinese soy sauce.

2079. Pfeiffer, Jeanine M. 1992. Work on soybean utilization at IITA in Nigeria (Interview). *SoyaScan Notes.* Oct. 10. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** While she was doing research on soybeans at IITA in Nigeria (during June-Dec. 1989), work on soybean utilization (soyfoods) was becoming a little more important, mainly because IDRC (the International Development and Research Center) in Canada began funding the soybean utilization program, starting in about 1987 or 1988, and continuing until about 1990 or 1991. This funding meant that scientists were interested in it and that there were funds for Nigerian NARCs (National Agricultural Research Centers) to put some money interest into it. This program also supported her research in Nigeria. At IITA's Grain Legumes Improvement Program, the food technology labs were located near the soybean breeders and entomologists and Ken Dashiell had a very close working relationship with the person in charge of the food technology program. When she was at IITA, utilization was really being pushed, in part because of pressure from the U.S. State Department, which felt it would create more soybean consumers to which the USA could export more soybeans.

She thinks that the interest in utilization is continuing, despite shake-ups at IITA, in part because Ken Dashiell, the soybean breeder at IITA, is now head of the Grain Legumes Improvement Program. IITA's support of the soybean breeding and production program seems to be increasing steadily. Address: Dep. of Agronomy, 220 Hunt Hall, Univ. of California, Davis, CA 95617. Phone: 916-752-1703.

2080. AGP–Ag Processing Inc a cooperative. 1992. Annual report: Partners in food production. 12700 West Dodge Road, P.O. Box 2047, Omaha, Nebraska 68103-2047. 24 p. 28 cm.
• ***Summary:*** Net sales for 1992 (year ended Aug. 31) were $1,126.667 million, up 30.0% from $864.675 million in 1991. Earnings before income taxes: $43.236 million, up 0.5% from the $43.016 million in 1991. Contains a 9-year summary of consolidated operating and financial statistics.

AGP is the largest cooperative soybean processing company in the world. "On December 2, 1991 AGP entered into a partnership agreement with Archer Daniels Midland [ADM] to purchase International Multifoods' North American Ag Operations which included Supersweet Feeds, Supersweet Agri Centers, the Supersweet Research Farms, a Grain Division, and Masterfeeds in Canada. In conjunction with this came the acquisition of ADM Feed Corp. with its formula feed mills and pet food operations. The two U.S. feed divisions have been merged into one under Supersweet Feeds... Pet Foods was set up as a separate division in 1991." AGP manages all these operations for the partnership [of which it is the majority partner] under the name AGP, L.P.; it "operates 19 feed manufacturing plants, 3 pet food plants and 29 Agri Centers located throughout the midwest." The Agri Centers are "retail stores selling feed and other farm supplies."

AGP tells the story of its origins in the book *Soybeans, Cooperatives, and Ag Processing Inc.*, by Margaret Finnerty, which is published in 1992. Address: Omaha, Nebraska.

2081. CSY Agri-Processing, Inc. 1992. Fact sheet (Brochure). Fort Wayne, Indiana: Public Relations Dept., Central Soya Co., Inc. 4 p. 28 cm.

• ***Summary:*** CSY Agri-Processing, Inc. is an international agribusiness company with holdings in the oilseed processing, feed manufacturing, and pork processing industries. The corporation is a Ferruzzi-Montedison company, operating as a member of the Eridania Beghin-Say agro-industrial group. The five primary holdings of CSY Agri-Processing, Inc. are Central Soya Company, Inc.,–Oilseed Products Group, Central Soya Feed Company, Inc., Provimi Holding B.V., Innovative Pork Concepts, and CanAmera Foods.

CSY Agri-Processing generates more than $2 billion in annual sales, and its various businesses employ approximately 4,000 people. Almost all of the holding company's principal operations–soybean processing, feed manufacturing, grain merchandising, vegetable oil refining, the manufacture of soy proteins and lecithins, and pork processing–involve the acquisition of agricultural products and their resale in processed form. The company is headquartered in Fort Wayne, Indiana, and counts among its holdings more than 70 plants and facilities throughout the world.

The five primary holdings are: (1) Central Soya Company, Inc.–Oilseed Products Group, which operates nine complexes and has 3 divisions: Soybean Processing Div. (owns 6 soybean processing plants with a capacity to crush about 100 million bushels annually), Refined Oil Div. (refines more than 600 million pounds of vegetable oils annually), and Chemurgy Div. (a world leader in the manufacture and marketing of soy proteins, lecithins, and related products).

(2) Central Soya Feed Co. has 3 divisions: Domestic Feed Div. (whose brands include Master Mix, Tindle Feeds, Farmacy, and Lipscomb's), Animal Health and Nutrition Div., and International Feed Div.

(3) Provimi Holding B.V. is the holding company for CSY Agri-Processing's European Feed operations, which include 14 feed and premix plants in Portugal, France, Switzerland, The Netherlands, Belgium, Greece, Italy, Poland and Hungary. Provimi Holding's operations market more than 200 basic poultry, swine, dairy, beef and specialty feeds under the Master Mix, Provimi, Protector, Celtic, and Vetem brand names.

(4) Innovative Pork Concepts is a CSY Agri-Processing unit that has formed a pork processing joint venture with Mitsubishi Corporation and Mitsubishi International Corporation. The joint venture, named Indiana Packers Co., operates a 300,000 square foot automated pork processing facility with a capacity to process 600 hogs per hour in Delphi, Indiana.

(5) CanAmera Foods is a Canadian oilseed processing and vegetable oil refining joint venture, formed in March of 1992. It is Canada's largest oilseed processing and refining business, and was formed through the combining of the operations of CSP Foods Ltd. and Central Soya of Canada Ltd., and the subsequent acquisition of the edible oils business of Maple Leaf Foods by the new venture. CanAmera Foods operates five crushing plants and five edible oil refineries.

The fully integrated, equally-owned joint venture has a strong presence throughout Canada and good access to U.S. and offshore markets. Its strategically located plants have both soybean and canola crushing capability, and produce a broad line of edible oil products marketed under well-known trademarks and brand names.

"Research: Heavy emphasis is placed on research and technology by each of the operating units of CSY Agri-Processing. Research is divided into two groups: Feed Research, with operations in Decatur, Indiana and Kerkdriel, The Netherlands; and Oilseeds Research, headquartered in Fort Wayne."

Note: Central Soya's parent company is Eridania Beghin-Say (EBS), which is headquartered in Paris. This is a newly formed agro-industrial group, that includes anything related to food and processing of agricultural products or commodities. It does market some foods at the retail level. Eridania was an oilseed processor and Beghin-Say processed sugar beets. One company in the group processes starch. Central Soya is the only U.S. company in the group; the rest are in Europe. Cereol is a conglomerate of European soybean crushers. Between 1985 and today, the Eridania Beghin-Say's revenues have more than quadrupled to more than $9,400 million, making it the 6th largest food company in the world considering food products exclusively. "This growth has placed Eridania Beghin-Say in important leadership positions within the EC and North American markets in the sugar, starch and starch derivatives, oilseed processing, and animal feed areas, as well as in certain major segments of the consumer food products area such as consumer oils, sauces, condiments, and spices. EBS's entry into the consumer food products market with well-known brands like Lesieur, Kiope, Carapelli and Ducros has constituted one of the most important components of the company's growth strategy." Address: P.O. Box 1400, Fort Wayne, Indiana 46801-1400. Phone: 219/425-5100.

2082. Hesser, J.M. 1992. The world wheat gluten market (Interview). *SoyaScan Notes.* Oct. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** In March 1981 Matt took over management of the International Wheat Gluten Assoc. (IWGA); it was the first association he managed. At the time, there were 11 members, all manufacturers of dry powdered wheat gluten from Canada, Australia, and American. His first project was to bring European (western and eastern), and Japanese manufacturers into the association. Today the IWGA has 23 members from around the world; all are still manufacturers of dry powdered wheat gluten. The annual output of the

individual member companies ranges from about 4,000 tonnes to 35,000 tonnes. Companies that make wet wheat gluten tend to be very small, often cottage industries.

IWGA publishes a quarterly newsletter sent to members and an annual newsletter with a circulation of about 350. Address: International Wheat Gluten Assoc., 4510 W. 89th St., Prairie Village, Kansas 66207. Phone: 913-341-1155 or 1156.

2083. *Ontario Soybean Growers' Marketing Board Newsletter.*1992. Chicago Board of Trade hampers Ontario soys. Oct. p. 5.

• ***Summary:*** "More than a year ago the Ontario Soybean Growers' Marketing Board informed government officials that Canadian soybean producers may be shut out of the world's largest soybean market.

"Last year the Chicago Board of Trade (Cbot) announced its certificate of origin ruling to dovetail the futures markets with the U.S. Export Enhancement Program."

The Soybean Board has fought to reverse or lessen the impact of this decision, with the support of Canada's soybean industry and the help of government officials at External Affairs in Washington and Agriculture Canada's Grain Marketing Bureau. These efforts have come to no avail so far.

"With the full implementation of the ruling as of September 1, 1992 our concerns are materializing. This rule of origin limits Canada's ability to compete. We are losing access to the U.S. soybean processor market and are being effectively blocked in accessing export routes via the highly efficient U.S. transportation system, even on a fee for services basis.

"The CBOT action blocks us from competing for resources on a level playing field. It bottle necks the flow of our soybeans backing them into the Canadian market. Once our crushers are full, the soybeans must be exported. To meet any export price Canadian soybeans must then move through our less efficient, higher cost delivery system. This means *every soybean bushel produced* will be priced on the lowest export price.

"For the most part Ontario soybean growers have been supportive of the free trade initiative of CUSTA, NAFTA, and GATT. Soybeans had moved freely between the U.S. and Canada since the last successful GATT round in 1977-79. We now face the opposite of a more open and freer market." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2084. Archer Daniels Midland Co. 1992. First quarter report to shareholders, and a report on the 69th annual shareholders meeting. Decatur, Illinois. 8 p.

• ***Summary:*** "Your company continues to build for the future. Last year our capital expenditures exceeded $900 million; this year we spent an additional $600 million. In the last three years our capital expenditures exceeded two billion dollars, and that was still well below our cash flow for the same period...

"Ogilvie Mills of Canada was acquired, along with a joint venture partnership to operate Pillsbury's four U.S. mills. The Ogilvie acquisition also made ADM one of the largest producers of wheat starch and vital wheat gluten, a major product for the baking industry...

"Our oilseed crushing division purchased a canola crushing plant in western Canada, further consolidating our position as the world's leading crusher of canola... Our crushing division now operates 45 plants, crushing soybeans, cottonseed, corn germ, flax, canola, and sunflower seed, and refines the oil in 14 refineries.

"Our edible soy protein business continues to grow. A large, ultra-modern soy protein concentrate plant was commissioned at Rotterdam [Netherlands]. Our edible soy protein business–concentrate, isolate, and soy flour products–increased 25 percent for the year. Production of Harvest Burger, our soy concentrate-based meat substitute, is selling at record levels in the U.S., Russia, and England...

"We are in a growth industry. Feeding people is our business. Each year there are nearly 100 million more people to feed on the face of the earth...

"We consistently lead the charts in sales per employee in our industry. People often ask me how we do so much business with so few people. My answer is that it's our culture, central to everything we do. Every company has a personality, just like every person. The basis of our culture, or personality, is very simple: we stay in the business we know. We concentrate on one major objective, and that is the return to our stockholders. We remain entrepreneurial, concentrating on only those matters essential to running a successful business... We keep meetings, memos, policies, and procedures to a minimum. We treat everyone as an individual, giving him or her the tools and the authority to do the job. We don't second-guess, and we don't criticize for honest mistakes."

"ADM is a company with no fixed management committees, no organizational charts, no bells, no whistles, and no gimmicks–just good pay and hard work." Address: Decatur, Illinois.

2085. Griffis, Gil; Wiedermann, Lars. 1992. Marketing food-quality soybeans in Japan: A manual on how to profit from the niche market in Japan for value-added soybeans. 5th ed. St. Louis, Missouri: United Soybean Board. 25 p. Nov. 28 cm.

• ***Summary:*** Contents: Introduction. Japan: Desired soybean characteristics, tofu (procedure for making tofu, desired soybean characteristics, color of hilum, seed size {the larger the better, preferably more than 20 grams/100 beans}, color of cotyledons, hull, composition, special notes, American

interpretation), miso (same categories of information as tofu), natto (ditto; seed size: The smaller the better, with a maximum of 5.5 mm diameter. Round shape is preferred to oval in order to limit swelling during the soaking and boiling processes), food quality soybean varieties (name, maturity zone, release year, used to make what soyfoods), distribution channels, marketing channels, protocol, pricing, organically-grown soybeans.

Taiwan: Introduction, list of major buyers, users, and trade associations. Korea. Southeast Asia. United States.

Appendix I. Distribution systems for soybeans used for food in Japan: Tofu, natto, miso. Appendix II. Food soybean imports by country of origin, 1984-1991. USA is the largest supplier (845,000 tonnes in 1991), followed by China (279,000), then Canada (28,000). Total imports, which have stayed about constant during this period, were 1,152,000 tonnes in 1991.

Appendix III. Distribution by usage of soybeans used for food–1991, direct use only in tonnes (metric tons). Tofu: 607,000 tonnes total, of which 562,000 come from the USA and Canada, 25,000 from China, and 40,000 from Japan. Up 2% from 1989.

Miso: 171,000 tonnes total, of which 38,000 come from the USA and Canada, 121,000 from China, and 12,000 from Japan. Up 0.5% from 1989.

Natto: 147,000 tonnes total, of which 87,000 come from the USA and Canada, 50,000 from China, and 10,000 from Japan. Up 9% from 1989.

Other: 39,000 tonnes total, of which 20,000 come from the USA and Canada, none from China, and 19,000 from Japan. Total food use of 964,000 tons is up 2% from 1989. Source: Japanese trade newspapers and trade associations. These figures do not include a estimated 492,000 tonnes of soybeans used indirectly (in the form of defatted soybean meal) for soy sauce, 222,000 tonnes used for soy protein, and 20,000 tonnes for other indirect uses.

Appendix IV. Directory of direct importers of food-quality soybeans. Appendix V. Traders of food-quality soybeans. Appendix VI. Soy food organizations in Japan (tofu, miso, soymilk, packaged tofu, natto). Appendix VII. Helpful contacts.

Food quality soybean varieties (with maturity group / zone, and year released; table, p. 5): Chico (00, 1983), Grande (0, 1976), Proto (0, 1989), Minnatto (0, 1989), NattoKing (I, 1988), Disoy (I, 1967), Vinton (I, 1978), Vinton 81 (I, 1981), King Natto (I, 1985), Kato (I, 1989), Magna (II, 1967), Prize (II, 1967), Marion (II, 1976), LS201 (II, 1989), Provar (II, 1969), Beeson (II, 1969), Kanrich (III, 1956), Kim (III, 1956), LS301 (III, 1989), Verde (III, 1967), IL2 (III, 1989; from Illinois), Hawk (III, ?), Emerald (IV, 1975), Vance (V, 1986), Camp (V, 1989), Hartz 936X (VI, 1981), Hartz 914 (VI, 1989), Hartz 922 (VI 1989), Merrimax (?, 1986).

Note: This report was originally published in Sept. 1989, mainly for use by the the American Soybean Association office in Tokyo. Address: 1. Division Director for Asia; 2. Country Director for Japan. Both: American Soybean Assoc.

2086. Brandenburg, Fred. 1992. What is the Ontario Soybean Growers' Marketing Board (Interview). *SoyaScan Notes.* Dec. 23. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Any farmer who grows and sells soybeans in the province of Ontario is deemed to be a member of the Ontario Soybean Growers' Marketing Board. There is an automatic checkoff of $1.00 (Canadian) per metric ton when the farmer first sells his soybeans. This checkoff supports the activities of the Board. Therefore this Board is an association of soybean growers quite similar to the American Soybean Association. Address: Secretary/ Manager, Ontario Soybean Growers' Marketing Board, Box 1199, 175 Keil Dr., S., Chatham, ONT, N7M 5L8, Canada. Phone: 519-352-7730.

2087. Ontario Soybean Growers' Marketing Board. 1992. Annual report. Box 1199, Chatham, ONT N7M 5L8, Canada. 24 p. 28 cm.

• ***Summary:*** This is a report for the year 1992. Contents: Mission statement. Chairman's message (Larry Miehls). Secretary manager's message (Fred Brandenburg, Dec. 1992). OSGMB summary of major activities in 1992. Auditor's report and balance sheet. 1992 soybean & research funding (incl. breeding of soybeans for tofu and natto). Ontario soybeans–supply and demand, 1989-1992. Soybeans: Area, production and farm value, by county, 1991, with provincial totals [including county and district totals], 1986-1991. Ontario marketings, 1989-91. Ontario soybeans: Production, crushings, imports, exports. 1991 crop year marketing by county. Ontario soybean exports by destination in metric tons. Soybean meal: Canadian imports and exports. Soybean oil: Canadian imports and exports. Quality of the 1991 soybean crop by county (in terms of mean oil content and mean protein content). Cash prices for Ontario soybeans (1990-1992). Ontario basis values (cents over futures). Weekly adjusted producer basis. Soybean supply and demand, 1990-1992: USA, world. OSGMB appointments for 1992 (officers and committees). 1992 district committee members of soybean board. Address: Chatham, ONT, Canada. Phone: 519-352-7730.

2088. *SoyaCow Newsletter (Ottawa, Canada).*1992. Child Haven ships more SC-20's to India. 1(4):1. Oct/Dec.

• ***Summary:*** "Six SoyaCows of the latest model were shipped to India by air on November 30, 1992. Child Haven, Maxville, Ontario, a registered charity in Canada,

USA and India, is in the third year of CIDA funding for its Soymilk Cottage Industry project in India.

"The machines will be installed at six selected sites by Ankur Services of Hyderabad. They have already installed six Soya-Cow machines sent earlier."

2089. Vachunova, Alena. 1992. Soybeans in Czechoslovakia. *Eurosoya* No. 9. p. 62-65. Dec. [Eng]
• ***Summary:*** The first soybeans were grown in Czechoslovakia during the 1880s as part of the trials of Professor Haberlandt of Vienna, which showed that soybeans could be acclimatized to Central Europe. The results were more experimental than practical. "This crop evoked more attention during wartime. At the beginning of the 20th century soybean was grown on larger areas in Slovakia around Galanta and Velke Sarovce, and after World War I also in the Czech lands in the areas surrounding Pohorelice and Znojmo. Dr. Ing. Chmelar (1917) and Prof. Dr. Ing. Hromadko (1923) were enthusiastic propagators of soybean. Many research institutes (in Prague, Tabor, Roudnice, Citoliby, Litol near Lysa, Brno, Lednice) became involved in studies of soybean. The Czech Department of Agricultural Council carried out experiments on 25 sites, 34 agricultural schools, the provincial pomological institute in Prague and many individual persons carried out station experiments...

"Yet soybeans did not become widely accepted and applied until after World War II when the varieties Hodoninska Zluta, Kromerizska, Dunajka, and Zora were bred." Further progress was achieved during the 1980s when varieties with higher performance and 15-16 days earlier maturity were bred. These new varieties included Ajda from Horni Mostenice (approved in 1984), Sluna, and Polanka from Uhersky Ostroh (1986 and 1989, respectively).

"The Agricultural Central Control and Testing Institute (ACCTI) is involved in the testing and approval of foreign varieties. In addition, the Research Institute for Plant Production in Piest'any was chosen as the main workplace for investigations and preservation of the world assortment of soybean... For over 20 years the Breeding and Research Institute in Uhersky Ostroh has tested more than 400 varieties of which 180 have been described and maintained in a germinating condition... The best foreign variety for growing in Bohemia and Moravia has proved to be the Canadian variety Maple Arrow which is sufficiently early and adaptable and which gives stable yields in our conditions."

During the 1980s the soybean was introduced into the Czech crop system using the latest scientific and practical knowledge. "In Slovakia this crop system was carried out in the agricultural farms Kamenicna and Cicarovce, in the Czech lands in the agricultural farms Uherske Hradiste and Sedlec near Mikulov. The results were good and so the area was extended to the expected acreage of about 5000 hectares [by 1985].

"The special-interest association SOJA, founded in 1991, links up with the crop system and associates breeders, growers, seed propagators and soybean processors. This association has not yet accomplished its function due to the monopolistic position of the processing industry...

"In the Czech lands, breeding is conducted in Uhersky Ostroh, Horni Mostenice and Zelesice, in Slovakia in Topolniky and Piest'any. These breeding activities are aimed at earliness, performance, plant architecture, resistance against lodging and podding." Address: Mendeleum Lednice, Nadrazni, 69144 Lednice, Czech Republic.

2090. Faulkner, W.L.; Egan, L.A.; Anderson, D.M. 1992. Apparent and true digestibility of dry matter, crude protein and amino acids in diets for mature silver foxes. In: 1992. Progress in Fur Animal Science. Norwegian J. of Agricultural Sciences. Suppl. 9, p. 268-274. [9 ref. Eng]* Address: Nova Scotia Agricultural College, Dep. of Animal Science, P.O. Box 550, Truro, NS B2N 5E3, Canada.

2091. Peace, R.W.; Sarwar, Ghulam; Touchburn, S.P. 1992. Trypsin inhibitor levels in soy-based infant formulas and commercial soy protein isolates and concentrates. *Food Research International (Ottawa, Ontario, Canada)* 25:137-41.
• ***Summary:*** Soy protein concentrates had levels of trypsin inhibitors intermediate to those in the raw soybeans and soy protein isolates tested. "Infant formulas also varied with ready-to-feed forms generally having higher, and concentrates and powders lower levels of activity. Residual trypsin inhibitor contents of the infant formulas tested ranged from 3 to 28% of the highest levels measured in raw soy samples." Note: This 28% figure is surprisingly high! Address: 1-2. Health and Welfare Canada, Bureau of Nutritional Sciences, Food Directorate, Health Protection Branch, Tunney's Pasture, Ottawa, Ontario, Canada K1A 0L2.

2092. Broehl, Wayne G., Jr. 1992. Cargill: Trading the world's grain. Hanover, New Hampshire, and London: University Press of New England (Dartmouth College). xx + 1007 p. Illust. Index. 24 cm.
• ***Summary:*** Cargill, one of the world's great multinational commodity trading companies, is one of the largest corporations in the USA, with annual sales of over $44 billion. It is the largest privately owned U.S. company, with almost all ownership in the hands of the Cargill and MacMillan families. In descending order of size in this industry are Cargill, Continental Grain, Louis Dreyfus, and Bunge y Born. All are privately owned, each by a dominant family. Only Cargill has been in the USA from its birth.

Though it is now 125 years old, Cargill has had only five CEOs (p. xvii).

The soybean arrives: Cargill purchased and stored some soybeans in 1935 and continued the same small transactions in 1936, though none remained in inventory at the year's end. Cargill began to take notice of soybeans in mid-1936 when the Chicago Board of Trade initiated a soybean futures contract as a new source of revenue. Cargill leadership expressed little interest in soybean processing, which was already in the hands of "big fellows" like ADM, Staley, Allied Mills, Glidden, and Spencer Kellogg & Sons (p. 447).

Cargill's work with soybeans is discussed extensively, starting with Chapter 15, "Cargill in World War II" (p. 617+). In 1942 President Roosevelt persuaded Congress to pass price-control legislation, creating the powerful OPA, the Office of Price Administration. It had a dramatic effect on U.S. agriculture. Meat and poultry were increasingly in short supply, so feed grains took priority over food grains. Corn and even surplus wheat was used as feed. Labor shortages in agriculture led to more mechanization and fertilizer use rose dramatically (p. 618). Soybeans became a key ingredient in animal feeds, and Cargill began purchasing in larger quantities. The OPA ceilings on soybean meal were so low that it was much more profitable for crushers to put their meal into their own feeds, rather than sell it. Against this background, in Jan. 1943, Cargill announced the purchase (for $300,000) of a soybean mill and feed plant, the Iowa Milling Co., in Cedar Rapids, Iowa [from Joe Sinaiko]; the initial push came from Julius Hendel.

Then in Oct. 1943 additional soybean crushing capacity was acquired through the purchase of the Plymouth Processing Mills (capacity: 75 tons/day of soybean meal) of Fort Dodge, Iowa.

Later that same month another soybean crushing plant was purchased–the Illinois Soy Products Company (soybean crushing capacity: 3,900 bushels/day) of Springfield, Illinois. These were small facilities and none used solvent extraction, but they represented a beginning; soybean crushing soon became a major part of for Cargill as the company worked to diversify (p. 665-66).

In May 1945, again with Hendel's leadership, Cargill purchased the Honeymead Products Co. in Cedar Rapids, Iowa. It had a feed plant with a capacity of 300 tons/day and a soybean solvent extraction plant (designed by Allis-Chalmers Co.) which initially had a capacity of 50 tons/day, expanded to 130 tons/day. Cargill called Honeymead their "West Side Plant"–but they forgot to buy the Honeymead name. The Andreas family sold the company because Dwayne Andreas had been classified 1-A in the draft (the highest priority for being drafted). The Andreas family owned the property and Dwayne agreed to join Cargill. Cargill asked the draft board for and received a 3-month deferment. At the end of that time the Pacific war was over. Andreas soon became a vice president of Cargill, the youngest in the company's history. "He thought like an owner" (p. 682, 687). Later, other Andreas family members resurrected the Honeymead name for their new oilseed crushing plant at Mankato, Minnesota (p. 683).

Rocky reconversion after World War II. During World War II there was a major increase in scientific livestock feeding, using nutritionally balanced feeds–in response to the shortage of all feeds. Cargill already owned the profitable Blue Square feed operation, but they wanted to expand it. So in Oct. 1945 Cargill purchased (for $1.6 million) the entire capital stock of Nutrena Mills Inc., a leading Midwest feed manufacturer with three mills (Kansas City and Coffeeville [Coffeyville], Kansas; and Sioux City, Iowa) and a combined capacity of 23,000 tons/month. Nutrena, now 25 years old, was one of the industry pioneers in both feeds and feed sacks (p. 688).

During World War II, the all-out agricultural production in the USA led to record output. Total production of soybeans increased from 78 million bushels in 1943 to 193 million bushels in 1945. Yet Cargill and others had great difficulty in obtaining the soybeans they needed. Gilbert C. Fite describes the agricultural revolution that took place during the war (p. 695-96). There was great pressure on government price administrators to loosen or remove controls; when they finally started to do, in May 1946, inflation followed. Julius Hendel wisely remarked: "The cure for high prices is high prices." The ceiling price on soybeans was not removed until 17 Oct. 1946 (p. 703).

Dwayne Andreas has a good idea and receives a $10,000 bonus (p. 704). Nutrena and Honeymead cause organizational problems. Centralization vs. decentralization. Tension between the Grain Division and the Oil Division–especially over soybean purchasing. The Alfred P. Sloan model of decentralized management at General Motors is widely imitated. By the early 1950s Cargill was decentralized (p. 707-712).

Chapter 17, "Korean War and Tradax beginnings." After World War II came the cold war, Truman Doctrine, NATO, and the Korean War. In agriculture, the New Deal policies of the 1930s continued essentially unchanged (p. 737-38). In 1950 Cargill purchased a new oilseed / soybean processing plant (capacity: 700 tons/day) in Chicago for more than $2 million. By 1951 the Oil Division was renamed the Vegetable Oil Division (p. 745). The Cargill Oats Case of May 1954. In Oct. 1954 ADM pleads guilty to CCC allegations. Selling oat futures vs. soybean futures (p. 761). 1952–Dwayne Andreas "resignation" after his unauthorized trip to Russia in April. He went on to an outstanding career, first with his family's company, then as an executive with the company that bought it, the Grain Terminal Association (later called Farmers Union Grain Terminal Association), and finally as CEO and a major

owner of ADM. He was replaced by M.D. "Pete" McVay as head of the Oil Division (p. 762-64).

1954–Cargill begins international trading with the move to Montreal of Kerrgill, a subsidiary of Cargill Internacional. It was soon renamed Tradax Canada Ltd. Cargill's headquarters on Lake Wayzata, Minnetonka, Minnesota (p. 774-75).

1953 Jan.–Dwight D. Eisenhower is inaugurated as president. In July 1953 he settled the Korean war. Ezra Taft Benson advocates a new farm policy, a return to a free market economy and flexible price supports (p. 776-77). 1955 Sept.–Julius Hendel retires. He was considered the "dean of grain trading." He had pioneered Cargill's grain laboratory in the 1920s, introduced scientific mixed feeds in the 1940s, and designed Cargill's renowned training program. (p. 782-85).

Eisenhower's second term in office (1956-60) is an era of farm surpluses. The P.L. 480 or "Food for Peace" shipments were an "heroic attempt to insulate some of this production from commercial channels." They totaled over $1 billion each year from 1956 into the 1960s. In 1959 Cargill had sales of $1.089 billion, making it the 34th largest company in the USA (p. 786-87). The Chase Manhattan Bank's consulting report and analysis of Cargill is blunt, credible, very positive but with many important suggestions for change; the soybean was the star of the Oil Division (p. 868-71). Summary of Cargill, 1963-1991 (p. 874-75).

Photos show: (1) Dwayne Andreas ca. 1950 (p. 682). Address: Dartmouth College, Hanover, New Hampshire.

2093. Chandra, R.K. 1992. Food allergy: 1992 and beyond. *Nutrition Research* 12(1):93-99. *

2094. Crawford, Gary W. 1992. Prehistoric plant domestication in East Asia. In: C. Wesley Cowan and Patty Jo Watson, eds. 1992. The Origins of Agriculture: An International Perspective. Washington, DC: Smithsonian Institution Press. xvi + 224 p. See p. 7-38. [154* ref]
• ***Summary:*** Contents: Introduction. Environment. Chronology and prehistory: China, Korea, Japan. Initial speculations (Japan). Archaeobotany and recent research. Northeast spread of plant husbandry. The cultigens: Barley *(Hordeum vulgare),* barnyard millet *(Echinochloa utilis),* broomcorn or common millet *(Panicum miliaceum),* foxtail millet *(Setaria italica* ssp. *italica),* rice *(Oryza sativa [Oryzae sativa]),* wheat *(Triticum aestivum),* adzuki and mung beans *(Vigna angularis* and *Vigna radiatus),* hemp *(Cannabis sativa),* melon *(Cucumis melo), (),* beefsteak plant and *egoma (Perilla frutescens),* other cultigens (incl. buckwheat, soybean, pea). Discussion and directions for future research. Acknowledgments.

The time span covered by this chapter ranges from about 8500 B.P. to 100 B.P. The origin of agriculture in China can be dated from about 7000 B.P. "The prevailing view is that agriculture began in Korea and Japan in the third millennium B.P. with the initiation of rice-based agrarian societies by both the diffusion of crops and ideas and the migration of people. Evidence is mounting, however, for earlier archaeological origins in these two areas" (p. 7).

In China, any cite with ceramics and no evidence of metallurgy is considered Neolithic. Pottery-bearing sites before 8500 B.P. are termed early Neolithic (p. 13). During the Neolithic, dependence on food production gradually increased.

Illustrations show: (1) Map of 10 vegetation zones of East Asia. (2) Diagram summarizing Northeast Asian chronology in northern China, Korea, southwest Japan, and Northeast Japan, from 8000 B.P. to 500 B.P. Arrow width is roughly proportional to the degree of dependence on food production. (3) Map showing location of 59 East Asian sites [archaeological, in China, Korea, and Japan] mentioned in the text. Address: Assoc. Prof. and Chair of the Dep. of Anthropology, Univ. of Toronto, Canada.

2095. Crombie, David. 1992. Regeneration: Toronto's waterfront and the sustainable city: Final report. Toronto, Ontario, Canada: Royal Commission on the Future of the Toronto Waterfront. 530 p. See p. 388. *
• ***Summary:*** "a new company created from the Sunsoy Products branch of Canadian... Mills soon leased a site at the southeast corner of Fleet and Parliament streets"

2096. CSY Agri-Processing, Inc. Gruppo Ferruzzi. 1992. 1991 annual report. Fort Wayne, Indiana. 28 p. 28 cm.
• ***Summary:*** David H. Swanson is chairman, president, and CEO of this newly established CSY Agri-Processing holding company (based on Central Soya Co.), which consists of the Oilseed Products Group, Animal Feed Group, Provimi Holding, and Innovative Pork Concepts. CSY Agri-Processing is a Ferruzzi-Montedison [pronounced fe-RUZ-zee mont-ED-uh-sun] company, operating as a member of the Eridania/Beghin-Say [pronounced er-uh-DAH-nee-uh bay-gun-SAY] agro-industrial group.

Net sales increased in 1991 to $2,060 million from $1,950 million the previous year, and earnings before financing costs, taxes, and minority interest increased 20.8%, to $64.4 million from $53.3 million.

Several strategic alliances were formed in 1991. First, the "joint venture, named CanAmera Foods, has assets and markets that make it the premier crushing and refining business across Canada. The new company is comprised of the assets of the Maple Leaf Foods Edible Oils Division, CSP Foods, Ltd., and Central Soya's Hamilton, Ontario, soybean and canola processing plant. Assets of the new entity include former Maple Leaf refineries in Toronto, Montreal and Wainwright, Alberta; an oilseed crushing

plant in Fort Saskatchewan; and a seed gathering station in Humboldt, Saskatchewan. Assets contributed by our joint venture partner, CSP Foods, the major processor of canola and sunflower seed in Western Canada, include crushing and refining facilities at Altona, Manitoba, and Nipawin, Saskatchewan; and a crushing plant at Harroby, Manitoba. A margarine manufacturing business in Edmonton, Alberta, formerly owned jointly by Maple Leaf and CSP Foods, is also part of CanAmera Foods operations. With expanded markets created in part by the U.S.-Canada Free Trade Pact, and the synergies and expertise offered through the strategic combination of talent and assets, we believe this joint venture has outstanding potential.

"Another joint venture, announced subsequent to year-end, will increase our penetration of lecithin markets in Europe and several other key areas of the world. Central Soya Company and the Stern-Wywiol Group, a leading European marketer of lecithin products, agreed to merge the European lecithin operations of the two companies. The new partnership, Stern Lecithin and Soja GmbH & Co. K.G., will be equally owned by the joint venture partners and will be among the largest companies operating in the European lecithin sector." Address: P.O. Box 1400, Fort Wayne, Indiana 46801-1400. Phone: 219/425-5100.

2097. Food and Agricultural Organization of the United Nations. 1992. Soybeans: Area harvested, yield, and production. *FAO Yearbook–Production (Rome, Italy)* 46:115-16.

• ***Summary:*** The following nations are listed for the first time as soybean producers in the *FAO Production Yearbook.* F = FAO estimate. * = Unofficial figure. Burkina Faso: Harvested 5,000F ha in 1990, 1991, and 1992.

Panama: Harvested 1,000 ha per year in 1979-1981, 7,000 ha in 1990, 6,000 ha in 1991, and 3,000 ha in 1992.

Honduras is no longer listed, but reappeared in 1994. Achieved yields of 747 kg/ha in 1991.

Syria: Harvested 5,000* ha in 1991 and 1992.

Albania: Harvested 4,000 ha in 1979-81, 10,000 ha in 1990, 9,000F ha in 1991, and 10,000F ha in 1992. Note: This is the earliest document seen (May 2003) that contains statistics on soybean production in Albania.

Bosnia and Herzegovina: Harvested 8,000 ha in 1990, 6,000* ha in 1991, and 5,000F ha in 1992.

Croatia: Harvested 27,000 ha in 1990, 23,000 ha in 1991, and 26,000 ha in 1992.

Macedonia: Achieved yields of 1,314 kg/ha in 1990, 1,833 kg/ha in 1991, and 1,600 kg/ha in 1992.

Slovenia: Achieved yields of 1,692 kg/ha in 1990, 2,000 kg/ha in 1991, and 978 kg/ha in 1992.

Former Soviet Republics–Azerbaijan: Harvested 1,000* ha in 1990, 1,000* ha in 1991, and 1,000F ha in 1992.

Georgia: Harvested 8,000 ha in 1990, 6,000 ha in 1991, and 6,000F ha in 1992.

Kazakhstan: Harvested 23,000* ha in 1990, 18,000* ha in 1991, and 19,000F ha in 1992.

Moldova: Harvested 26,000* ha in 1990, 20,000* ha in 1991, and 20,000F ha in 1992.

Russia (Russian Federation): Harvested 741,000 ha in 1979-81, 675,000 ha in 1990, 664,000 ha in 1991, and 632,000 ha in 1992.

Ukraine: Harvested 69,000 ha in 1979-81, 87,000 ha in 1990, 100,000 ha in 1991, and 100,000F ha in 1992.

Thus in 1992 the former Soviet Union harvested 800,000F hectares of soybeans. The leading countries, in descending order of soybean production, were Russia, Ukraine, Moldova, and Kazakhstan.

2098. Gupta, Umesh C. 1992. Characterization of the iron status in plant parts and its relation to soil pH on acid soils. *J. of Plant Nutrition* 15(10):1531-1540. [18 ref]

• ***Summary:*** The highest concentrations of iron in plant tissue in Prince Edward Island (P.E.I.) were found in potatoes, carrots, broccoli, soybeans, and in the lower leaves of tobacco. In the case of soybeans, the whole vegetative tops contained as much iron as did the grain, indicating greater translocation of minerals from the vegetative parts to the seeds. Soybean seeds contained a much higher concentration of iron than cereal grains. On most P.E.I. soils, pH had no significant effect on the iron concentration of the plant tissue. Address: Research Branch, Research Station, Agriculture Canada, Charlottetown, Prince Edward Island, Canada C1A 7M8.

2099. Ivany, J.A.; MacLeod, J.A.; Sanderson, J.B. 1992. Response of four soybean cultivars to metribuzin. *Weed Technology* 6(4):934-937. [7 ref]*
Address: Research Station, Agriculture Canada, Charlottetown, PEI, C1A 7M8, Canada.

2100. Ivany, J.A.; Holm, F.A. 1992. Herbicides for weed control in narrow-row soybeans. In: 1992. Proceedings of the 39th annual meeting of the Canadian Pest Management Society. Agassiz, Canada: Agassiz Research Station, Agriculture Canada. Held 5-8 July 1992, Brandon, Manitoba, Canada. See p. 1-5. *
Address: Research Station, Agriculture Canada, Charlottetown, PEI, C1A 7M8, Canada.

2101. Jacques, Hélène; Laurin, D.; Moorjani, S.; et al. 1992. Influence of diets containing cow's milk or soy protein beverage on plasma lipids in children with familial hypercholesterolemia. *J. of the American College of Nutrition* 11(S):69S-73S. [23 ref]

• ***Summary:*** Soy protein seems to have anti-atherogenic properties. There is also the possibility that reliance on soy-

based beverages may be beneficial in preventing coronary heart disease in children with familial hypercholesterolemia. Address: Dep. of Human Nutrition and Consumer Studies, Laval Univ., Lipid Research Unit, Quebec, Canada, and Protein Technologies International, St. Louis, Missouri.

2102. Kimpinski, J.; Edwards, L.M.; Gallant, C.E.; et al. 1992. Influence of previous crops and nematicide treatments on root lesion nematode populations and crop yields. *Phytoprotection* 73(1):3-11. [26 ref. Eng; fre]*
Address: Agriculture Canada, Research Station, Charlottetown, PEI C1A 7M8, Canada.

2103. Kunelius, H.T.; Johnston, H.W.; MacLeod, J.A. 1992. Effect of undersowing barley with Italian ryegrass or red clover on yield, crop consumption and root biomass. *Agriculture, Ecosystems and Environment* 38(3):127-137. [15 ref]*
Address: Research Station, Sgriculture Canada, Charlottetown, PEI C1A 7M8, Canada.

2104. McGarry, Michael J.; Schmitz, Andrew. 1992. The world grain trade: Grain marketing, institutions, and policies. Boulder, Colorado: Westview Press. xx + 510 p. Illust. No index. Maps. 24 cm. [15 soy ref]
• ***Summary:*** This very interesting book, which is crippled by the lack of an index, has the following contents: Part I: Argentina. 1. Background. 2. The grain sub-sector. 3. Policies affecting the grain sub-sector. 4. Institutions affecting the grain sub-sector. 5. Grain marketing. 6. Future directions. 7. Statistical annex, maps, bibliography.

Part II: Brazil. 8. Background. 9. The grain sub-sector 10. Policies affecting the grain sub-sector. 11. Institutions affecting the grain sub-sector. 12. Grain marketing. 13. Future directions. 14. Statistical annex, maps, bibliography.

Part III: Australia. 15. Background. 16. Grain production and marketing. 17. Public policy. 18. The Australian Wheat Board. Bibliography.

Part IV: Canada. 19. Background. 20. Grain production and marketing. 21. Programs affecting prairie agriculture. 22. Conclusions. Bibliography.

Part V: United States. 23. Social and economic environment. 24. Grain production. 25. Grain marketing. 26. Policies and group actions that affect grain markets. 27. Conclusions. Bibliography.

The "Preface" notes that grain represents the single most important component of world food consumption, accounting for about 60% of calories consumed. Total production of cereal grains (wheat, coarse grains, and rice) is about 1,890 million metric tons (mmt), of which about 12% is traded. World production of oilseeds is about 215 mmt, of which about 18% is traded. The five countries discussed in this book grow about 25% of the world's cereal grains, and they export over 60% of all the grain traded internationally. They also produce about 50% of the world's oilseeds and account for 75% of the oilseeds traded.

Several of the key issues discussed by this book include: (1) Deregulation of the grain industry in many countries. (2) How important is the effects of macroeconomic policy on grain production and marketing.

Soybeans are mentioned throughout the parts on Argentina and Brazil. The "Background" section at the start of each part gives deep insights into the policies of that part which profoundly affect its production and marketing, economics and politics of grains. Address: 1. Chief, Agriculture Div., Technical Dep., Latin America and the Caribbean Region, World Bank.

2105. Ontario Soybean Growers' Marketing Board. 1992. 1992 dealer's manual. Box 1199, Chatham, ONT N7M 5L8, Canada. 28 p. 28 cm.
• ***Summary:*** Contents: Ontario Soybean Growers' Marketing Plan (Regulations 378 and 379 of Revised Regulations of Ontario, 1980, as amended... (Aug. 1987)). Regulation 1-192. Application for license as a dealer in soybeans. License as a producer of soybeans. Soybean dealer license for 1992 crop. Ontario soybean order (Interprovincial and Export Trade). Ontario Soybean Marketing Levies Order (Canada Gazette). 1992 Soybean Marketing Agreement. 1992 soybean conversion table (wet pounds to dry tonnes). Dealer monthly soybean report information. Grading soybeans–Canadian Grain Commission. Soybeans–recommended varieties and description (For each variety is given: Variety name. Heat units required. Hilum color. Seeds per kilogram. Phytophthora root rot reduction–% plant loss. Distributor). 1991 Eastern Canadian soybean survey–by grade and by county. Soybean advance payment program. Address: Chatham, ONT, Canada. Phone: 519-352-7730.

2106. Santos, D.T. 1992. Soybean cultivation in the Philippines. In: Increasing Soybean Production in Asia: Proceedings of a Workshop. 1992. Bogor, Indonesia: CGPRT Centre. 187 p. See p. 137-50. Held 21-24 Aug. 1990 at Phitsanulok, Thailand.
• ***Summary:*** Contents: Introduction. Development of the soybean industry: Nestlé Philippines' soybean operations (Nestlé soya farm, commercial soy production, soy loan and buy-back scheme, soy sourcing beyond Tupi, growth requirements and adaptability of soybean, soybean cropping systems), crop research and development, extension programme. Appendix 1: Soybeans–maize monocropping (crop rotation). Appendix 2: Maize–soybeans–crop rotation (three consecutive maize followed by soybeans). Appendix 3: Maize–soybeans intercropping (6 rows corn -4 rows soybeans). Appendix 4: Wet season 1988–soybean researchers at Nestle soya farm Tupi South Cotabato.

"Soybean, first cultivated in China during the eleventh century BC, was introduced into trading regions of the Philippines in the fifteenth century AD. Its cultivation and use spread throughout the Philippines and then the western hemisphere in the nineteenth century. Soybean... is considered by scientists and economists to be a major food source for the future. Although currently produced in small quantities, both traditional and new soybean products such as soya cheese, soybean curd, and miso, and Nestle's Twin, Vita, Soyex and Ceresoy, are popular with Filipinos.

"Development of the soybean industry: Soybean production in the Philippines has developed in response to an increasing demand. Varietal selection and development commenced in the early 1930s. In the 1970s, the Philippines Council for Agriculture and Resources Research and Development (PCARRD), in cooperation with the University of the Philippines at Los Baños and the Department of Agriculture, introduced the National Soybean Production Programme (NSPP) which promoted development of, and self sufficiency in, soybean... Under the programme, soybean planting was established throughout the country. A large soybean extraction plant with a 50 ton daily capacity was built by the Philippines Asia Food Industries Corporation in the early 1980s to produce the livestock industry's requirements of soybean oil and meal as well as soy-based food products.

"However, the combined impact of limited raw materials, the 1984 recession and some external political pressures led to the closure in 1986 of the factory and the NSPP. Individual initiatives among former participants allowed research and development activities to continue.

"PCARRD is currently engaged in a comprehensive nutrition-based programme covering soy production, post-harvesting processing, marketing, product utilization and development of improved varieties. This programme is funded by the International Research and Development Center of Canada."

"Nestlé Philippines' soybean operations: During the last ten years, Nestlé Philippines has developed new soy-based products with the assistance of Nestlé Switzerland. These include Vita Choco Drink, Twin, Ceresoy and Soyex.

"Nestlé Philippines, through Nestlé Soya Farm, continues to identify promising soy varieties and to generate the appropriate production and post-harvesting processing techniques to ensure its factory receives high quality raw materials.

"Nestlé soya farm: This six hectare soy research and demonstration farm in Tupi, South Cotabato has three main functions: production, crop research, and development and extension." Address: Nestlé Philippines, Inc., Agricultural Services Dep., 335 Gil Puyat Ave., Makati, Metro Manila, Philippines.

2107. Shirai, Keiko; Gutierrez-Durán, M.; Marshall, V.M.E.; Revah-Moiseev, S.; García-Garibay, M. 1992. Production of a yogurt-like product from plant foodstuffs and whey. Sensory evaluation and physical attributes. *J. of the Science of Food and Agriculture (London)* 59(2):205-10. [12 ref]

• ***Summary:*** The yogurt-like product described on the previous pages of this issue had good viscosity and stability to syneresis. Its acceptability was good, and made better by the addition of sugar or flavors. A combination of starter strains was very important to get good acceptability. Initially a commercial yogurt culture (Rosell Institute, Inc., Montreal, Canada) was used, but it led to a strong bitter aftertaste in the mixed culture, so it was not used again. The ropy strains *Lactobacillus delbrueckii* ssp *bulgaricus* NCFB 2722 and *Streptococcus salivarius* ssp *thermophilus* NCFB 859, from the National Collection of Food Bacteria (Reading, UK), and commercial plain yogurt were therefore used as inocula. Address: 1-2&5. Departamento de Biotecnología, Universidad Autónoma Metropolitana, Iztapalapa, AP 55-535 Mexico; 3. School of Biological and Molecular Sciences, Oxford Polytechnic, Oxford OX3 0BP, United Kingdom.

2108. Brandenburg, Fred. 1993. Subsidized preferential railroad freight rates for canola and canola products in Canada (Interview). *SoyaScan Notes.* Jan. 13. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Canola seed and canola products (oil and meal), traveling from western Canada either westward to the west coast (for export) or eastward to Thunder Bay, Ontario, receive subsidized rail rates. Canola products (oil or meal) traveling from Thunder Bay eastward move at the government-mandated Minimum Compensatory Rate (MCR), which is a lowest rate that the railroads can legally charge; it just covers their variable costs. MCRs in Canada, which started in about 1975-76, apply only to canola oil and meal. The government favors canola over soybeans for political reasons–which have a long history. In about 1912 the Crow Rate was initiated as a perpetually high rate for shipping grain out of western Canada's 3 prairie states. Its purpose was to assure that the railroads made a profit. In about the 1950s or 1960s the rate shifted to being a low rate, below the commercial rate, and federal government started to pay a subsidy to the railroads. The government currently pays a subsidy of about $700 million a year to the railroads. The Crow Rate was replaced by the Western Grain Transportation Act (WGTA) of 1984, but it basically does the same thing. People still speak of the government subsidy as the "Crow benefit."

The main change that the Ontario Soybean Growers' Marketing Board (OSGMB) would like to see is discontinuance of the MCR subsidy for canola oil and meal east of Thunder Bay since this subsidy gives these products

an unfair advantage over soy oil and meal. OSGMB and the railroads both oppose the MCRs and both think that eliminating them would probably increase canola shipping costs only a small amount. In Canada, there used to be the western canola crushers and the eastern soybean crushers. Now that Canada's crushing industry has undergone a major rationalization, the major companies also oppose the MCRs; it is no longer an east-west canola versus soya issue any more.

Other issues actively debated now are: (1) Why not pay the subsidy to the farmers rather than the railroads; (2) Isn't the subsidy really just a subsidy for Japan, which buys almost all of the exported canola. Address: Secretary/ Manager, Ontario Soybean Growers' Marketing Board, Box 1199, 175 Keil Dr., S., Chatham, ONT, N7M 5L8, Canada. Phone: 519-352-7730.

2109. Brandenburg, Fred. 1993. Update on soybean crushing in Canada (Interview). *SoyaScan Notes.* Jan. 13. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** In recent years, Canada's crushing industry has undergone an extensive rationalization and American companies have become major players. ADM has a crush plant in Ontario which crushes canola and soybeans, and a crushing plant in Alberta which crushes canola. Central Soya is now a partner in CanAmera, which has crush plants on Ontario, Manitoba, and several other places.

In Aug. 1984 Central Soya Co. bought Victory Soya Mills (built in 1944) in Toronto, then shut it down in March 1991. The buildings have been standing inactive for several years on the Toronto waterfront. Central Soya would like have the property rezoned as residential, tear down the mill buildings, then sell the property and make a lot of money. They would use that money to upgrade their plant in Hamilton, Ontario, which has both a soybean crushing line and separate canola crushing line.

What used to be the CVOP soybean crushing plant in Hamilton (formerly owned by Canada Packers, Inc.) was sold to Central Soya Co., Inc. in Sept. 1989. The plant came to be named Central Soya of Canada Ltd. In March 1992 Central Soya of Canada Ltd. and CSP Foods formed CanAmera Foods, a joint venture, combining their crushing and refining operations, and together bought all the crushing and refining interests of Maple Leaf Foods (formerly Canada Packers Inc., including refineries in Toronto and Montreal, and a crush plant and refinery in western Canada). CSP had several crush plants. Address: Secretary/ Manager, Ontario Soybean Growers' Marketing Board, Box 1199, 175 Keil Dr., S., Chatham, ONT, N7M 5L8, Canada. Phone: 519-352-7730.

2110. AGP–Ag Processing Inc a cooperative. 1993. Presentation to [Alternative] Agricultural Research & Commercialization Center, for biodiesel commercialization. Omaha, Nebraska: AGP. 8 p. 28 cm.
• ***Summary:*** Contents: Introduction: Biodiesel overview, economic viability, engine manufacturers, supply. Technology: Chemistry and engineering, the commercialization program. Capabilities and qualifications: Ag Processing Inc. Conclusions. Appendices: National Soy Fuels Advisory Committee data. Comprehensive National Energy Policy Act, summary of final motor vehicle fleet and fuel provisions of H.R. 776, Title III: Alternative Fuels, Federal Programs. Soy diesel as a replacement for diesel fuel, project update, Dep. of Agricultural Engineering, Univ. of Missouri-Columbia. Biodiesel Alert, Vol. 1, No. 1, Dec. 1992. Bio-diesel, an alternative fuel for short-term introduction report, Connecticut Transit. Diester, the European biofuel for Engines, F. Staat. Catalytic conversion of vegetable oils to diesel additives, Saskatchewan Research Council Report [Canada]. Biodiesel–A challenge for the '90s: From agriculture to environmental protection, C. Rocchietta.

New technology: "Today, research and development is focused primarily on fuels derived through the transesterification of vegetable oils and tallows. Transesterification is a process whereby the heavy glycerin portion of the oil is separated out." Address: 12700 West Dodge Road, P.O. Box 2047, Omaha, Nebraska 68103-2047.

2111. *Agri-Book Magazine (Exeter, ONT, Canada).*1993. Beans in Canada. 19(3):1-23. Jan.
• ***Summary:*** This entire special issue is about soybeans in Canada, with emphasis on soybean production. The magazine is printed with soy ink. Articles include: Top yields with no-till. Ten myths about conservation tillage. Ontario Soybean Growers' Marketing Board Newsletter–new format (insert). Ad for symposium "Soybeans in Canada: Beyond 100 Years," organized by the Ontario Soybean Growers' Marketing Board, to be held 28-30 March 1993 in Toronto, Ontario, Canada at the Regal Constellation Hotel; gives names and photos of speakers. Breeding the soybeans of the future. Genetic ingenuity.

In the Newsletter, an article titled "Profile of Larry Miehls, Soybean Board Chairman," notes: "Sixty-five percent of Ontario's soybeans are grown in five counties–Essex, Kent, Lambton, Middlesex, and Elgin... Today the majority of acres goes to two Ontario crushing plants. Twenty percent of the crop is exported and half of that is for human consumption." Therefore breeders need to concentrate on developing soybeans with more sugar, more protein, and less oil. "There is also a trend toward whole roasted beans for animal feed, and I see this as a major area of growth... For food quality soybeans, Japan remains the board's largest export customer.

"Pacific rim customers are interested in buying Ontario soybeans because of their high quality. Canada is also credited with strict grading standards, good processing people–the cleaners and the baggers–and farmers who keep up-to-date. Natto and tofu quality soybeans are popular among the Pacific rim customers. 'The breeders have done a good job of developing beans to meet customer needs...

"'The Harovinton, a tofu bean, was developed at the Harrow Research Station with a lot of board support. It's really starting to take off,' says Larry."

2112. Ontario Soybean Growers' Marketing Board. 1993. Soybeans in Canada: Beyond 100 years–The symposium of the century (Leaflet). Box 1199, Chatham, ONT N7M 5L8, Canada. 8 panels. Front and back. 28 cm.
• ***Summary:*** This glossy color leaflet (black on light orange) announces the symposium that will celebrate 100 years of soybeans in Canada. It will be held on 28-30 March 1993 at the Regal Constellation Hotel in Toronto, Ontario. Hosted by the Ontario Soybean Growers' Marketing Board, the Ontario Ministry of Food, and Agriculture Canada. It gives the full program including the date, time, presentation title and speaker's name. Address: Chatham, ONT, Canada. Phone: 519-352-7730.

2113. **Product Name:** White Wave Tofruit (Soy Yogurt) [Strawberry / Fraise].
**Manufacturer's Name:** White Wave, Inc.
**Manufacturer's Address:** 6123 E. Arapahoe Rd., Boulder, CO 80303. Phone: 303-443-3470.
**Date of Introduction:** 1993. January.
**Ingredients:** Water, organically-grown soybeans [made into soymilk], brown rice syrup, strawberries, concentrated pineapple, peach and pear juices, tapioca starch, natural fruit flavors, vanilla, pectin, guar gum, carrageenan, natural colour, citric acid, bacterial culture. Our soybeans are organically grown and processed in accordance with the California Organic Foods Act of 1990.
**Wt/Vol., Packaging, Price:** 6 oz plastic (HDPE) cup. Retails for $0.79 to $1.09.
**How Stored:** Refrigerated.
**Nutrition:** Per 6 oz.: Calories 162 (600 kj), protein 6.0 gm, carbohydrates 30 gm, fat 2.0 gm.
**New Product–Documentation:** Label sent by Lon Stromnes of White Wave. 1993. Feb. 26. This product, introduced in Jan. 1993, is very similar to White Wave Dairyless except that it is labeled for the Canadian market. Red, dark blue, light blue, and white. "Made with live bacterial cultures including acidophilus and bifidus."

2114. University of Illinois, Dep. of Agronomy. 1993. USDA Soybean Germplasm Collection: Public varieties (United States and Canada). Urbana, Illinois. 3 p. Feb. 16. Unpublished typescript. 28 cm.
• ***Summary:*** Lists 338 public soybean varieties that are currently in the USDA Germplasm Collection. For each variety is given: Year the variety was licensed or released. Maturity group. Code letters for the following: Stem termination (indeterminate, semi-determinate, determinate), flower color, pubescence color, pubescence form, pubescence density, pod color, seed coat luster, seed coat color, hylum color, and other unique characteristics.

Across the top of page 1 is a horizontal table. In the top row are 13 maturity groups from 000 to X. In the second row are the number of varieties belonging to each maturity group, plus the total (338).

Note: This document was sent to Soyfoods Center by Dr. Richard Bernard in Dec. 1998. On it he wrote a "v" to the left of the following varieties, which he believes to be a large-seeded vegetable-type soybeans: Disoy (1967), Emerald (1975), Grande (1976), Kahala (1969), Kaikoo (1969), Kailua (1969), Kanrich (1956), Kim (1956), LS201 (1990), LS301 (1990), Magna (1967), Merrimax (1986), Mokapu Summer (1969), Prize (1967), Verde (1967), Vinton (1978), Vinton 81 (1981).

He also wrote a "n" to the left of the following varieties, which he believes to be a small-seeded soybeans released for natto or sprouts: Camp (1989), Canatto (1985), Chico (1983), IL1 (1989), IL2 (1989) (Note: IL varieties are from Illinois), Minnatto (1989), Nattawa (1981), Nattosan (1989), SS201 (1989), SS202 (1989), Vance (1986).

At the end he wrote in the names of large-seeded vegetable-type soybeans released from 1992 to 1997: IA2012, IA2016, IA2020, IA2034, IA3001, IA3002, IA3006 (Note: IA varieties are from the Iowa and Puerto Rico AES), Ohio FG1, Ohio FG2, Saturn. He also wrote in the names of small-seeded natto- or sprout-type soybeans released from 1992 to 1997: AC Pinson?, Danatto, IA2005, IA2023, IA2024, IA2035, IA3007, IA3008, IA4001, Mercury, Micron, Peral, TNS? Address: Univ. of Illinois, Urbana, Illinois.

2115. Sanderson, J. Brian. 1993. The history of soybeans on Prince Edward Island, Canada (Interview). *SoyaScan Notes.* Feb. 25. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Brian is sure that soybeans were tested on Prince Edward Island (PEI) as a forage crop at the Agriculture Canada Research Station in 1934. This information is in the Charlottetown Research Station Progress Report 1932-1936 inclusive (which he will send) but the first year of testing is not clearly stated. However knowing the way that Agriculture Canada often worked, sending seed for testing to various stations at the same time, they may have been tested on PEI a year or two earlier, as they were at Lennoxville, Quebec (1933) and Fredericton, New Brunswick (1933).

In the summer of 1974, Brian reintroduced soybeans to PEI using some numbered varieties developed by Dr. Harvey Voldeng's breeding program. No soybeans had been grown on PEI for many years before that time.

During the last few years, soybean acreage on PEI has increased substantially because of new short-season varieties which came out of the Voldeng breeding program. Brian ran the program until the end of the season in 1978, then he went back to the University. In 1979 Dr. George Jones took over Brian's work with soybean breeding and development on PEI. At that time, as Brian recalls, there was no commercial soybean acreage on PEI; they were still in the testing phase with one extremely early variety available to them–Maple Presto. That was the variety that really started soybeans on PEI. Maple Presto is no longer being used because it was found to be too early for PEI! In about 1982-83 soybeans were first grown commercially on PEI. In 1991 approximately 6,000 acres of soybeans were grown on PEI, and in 1992 an estimated 9,000 acres were grown; this acreage is steadily increasing. The soybeans are grown mainly for their seeds which are used in hog and dairy rations on farms. In the early days, whole (full-fat) soybeans which had not been heat treated were fed to dairy cattle (ruminants). The unheated soybeans were first ground in a mill (the type used for cereal grains) then fed fairly soon to the cattle before the oil could go rancid. Then extrusion cookers started to be used in about 1988-89; this made it possible to feed soybeans to hogs and chickens.

Dr. George Jones is a native islander and thus might know some of the early history. He has been a teacher for about 40 years; he started off specializing in corn but in later years he has been into soybeans. He is probably a wealth of information on both PEI and Ontario. Two other key men in Ontario are Wally Beversdorf in Guelph and Dr. Voldeng of Agriculture Canada in Ottawa. Address: P.Ag., Biologist, Potato Management, Agriculture Canada, Charlottetown Research Station, P.O. Box 1210, Charlottetown, PE C1A 7M8, Canada. Phone: 902-566-6842.

2116. Badani, Bernard. 1993. Edible soybean mission report, Korea, Indonesia, Taiwan, February 1993. Ottawa, Ontario, Canada: Agriculture and Agri-Food Canada. iii + 14 + 17 p. 28 cm. Spiral bound.
• ***Summary:*** Contents: Foreword. Acknowledgements. Mission members: Tino Breuer, Ron MacDougall, Dr. Gary Ablett, Jim Lowe, Bernard Badani. 1. Visit to Korea: Executive summary, report, conclusions, recommended follow-up. 2. Visit to Indonesia: Executive summary, report, background, price structure, quality requirements, conclusions, recommended follow-up. 3. Visit to Taiwan: Executive summary, report, background, price structures, conclusions, recommended follow-up. Appendix A. List of contacts (photocopies of business cards of people met on the trip). List of 26 invitees for Canadian soybean seminar in Seoul (15 Feb. 1993), including academic researchers, government, soybean crushers, soysauce association, tofu association, food-related media, soybean milk manufacturers (Kwangja General Foods Co., Namyang Dairy Co., Lotte-Chilsung Beverage Co., Samyuk Foods Co., Dong-A/Otzka Co., Dr. Chung's Foods, See Joo Industry Co.). List of participants for Indonesia and business cards from Indonesia (incl. Primkopti, Sarpindo, Ikapti, Yeo's-P.T. Salim Graha). Business cards from Taiwan. Address: Oilseeds Div., Grain Marketing Bureau, Grains and Oilseeds Branch, Agriculture Canada, Ottawa.

2117. Ontario Soybean Growers' Marketing Board. 1993. [Canadian soybean seminar]. 32 p. Held 15 Feb. 1993 in Seoul, Korea. [Kor]
• ***Summary:*** Contains Korean translations of papers presented by Tino Breuer and Gary R. Ablett, plus a statement about soybean grading and grades in Canada.

2118. Voldeng, Harvey D. 1993. Work with breeding short-season soybeans in Canada (Interview). *SoyaScan Notes.* March 2. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The first soybean work at the Central Experimental Farm was begun in the late 1920s by Dr. Dimmock. Dr. Voldeng earned a BSc and MSc at the University of Saskatchewan in Saskatoon in crop science with an emphasis on breeding and genetics. He then earned his PhD in corn physiology at the University of Oxford (Dep. of Agriculture) in England. Then in 1968 he returned to Canada and began work at Ottawa until about 1974 in field crop physiology of corn with Dr. Lorne Donovan, who was the successor to Dr. Dimmock. Dimmock had worked with both corn and soybeans, and when Dimmock retired in about 1960, Dr. Donovan took over his work on both of these crops. Before Dr. Donovan, other breeders had used the Swedish germplasm and elite Fiskeby varieties (some pure lines registered in Sweden by Dr. Sven A. Holmberg), but Dr. Donovan used it in a much bigger way. "When you look into Dr. Holmberg's work, it was remarkable. He was a very, very good soybean breeder. Nobody in Europe, even up until now, has conducted breeding programs on the scale and with the number of crosses that he did." He got big results on a small budget, with funding coming mostly from a small private seed company and perhaps some from the Swedish government.

Starting in 1974 (just after the U.S. soybean embargo) Dr. Voldeng began to work mostly on soybeans with Dr. Donovan, using growth chambers (artificial warm environments) and manipulating photoperiod, to cross the very early material from Sweden with Corn Belt (Iowa-Illinois) varieties such as Amsoy, Corsoy, and with Harsoy. This work as very successful. The key to the success was

that the Swedish germplasm brought insensitivity to photoperiod and tolerance to colder temperatures; moreover, the plants matured very quickly.

The first really important soybean variety to come out of the program run by Dr. Donovan and Dr. Voldeng was Maple Arrow. Dick Buzzell made the cross at Harrow, Dr. Donovan made the selections, and Dr. Voldeng took the variety through the registration process. This variety introduced a new era for soybeans in Canada. Not only was it early, it was stable and reliable and high yielding. It allowed soybeans to be planted farther and farther north in Canada and it raised yields. The northernmost testing station for these varieties in Canada was at Melfort (53º north latitude) in central Saskatchewan. Maple Presto was an extremely early variety with good shattering resistance and high oil content, but it was never a success commercially because the extreme earliness resulted in a sacrifice of too much yield.

The two varieties that have been most successful commercially, Maple Glen and Maple Donovan, have come out in the last 7-8 years. Each has good yield, stability, earliness, and adaptation. In Ontario, high-yielding, stable varieties such as Maple Glen, Donovan, Arrow, Amber have made soybeans a competitive profitable crop. These varieties have both increased yields and acreage on the edges of the traditional southern counties and allowed soybeans to be grown profitably farther and farther north. Maple Arrow, because it could be harvested in only about 120 days, was found work very well in rotation with winter wheat. It allowed the 2-crop rotation work better, allowing earlier planting of winter wheat, making it more profitable, and allowing it to move northward. Maple Isle and Maple Amber, which are relatively early, have been key varieties on Prince Edward Island. He knows of none of his varieties that have been tested in Newfoundland.

The many new soybean varieties developed by Dr. Voldeng's program have been registered (including a full description of the variety with a registration number) with the Seeds Division, Food Production and Inspection, of the Canadian government but he has not published many articles concerning his work. Recently he, Dr. Wally Beversdorf (the senior author) at Guelph, Dr. R.I. Buzzell at Harrow, Dr. Gary Ablett at Ridgetown (Kent County, Ontario), have written a chapter on soybeans in a book that will soon be published on the history of plant breeding in Canada. Address: Agriculture Canada, Central Experimental Farm (CEF), Building #110, Ottawa, ONT K1A 0C6, Canada. Phone: 613-995-3700 x 7653.

2119. Bergh, Barbara. 1993. The Canadian Oilseed Processors Association (Interview). *SoyaScan Notes.* March 5. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The Canadian Oilseed Processors Association (COPA) is a trade association representing Canadian oilseed crushers. Thus it is similar to the National Oilseed Processors Association (NOPA) in the USA. The organization was founded in 1978 as the Canola Crushers of Western Canada; the name was changed to the present name on 1 June 1992. The main oilseeds crushed in Canada are, in descending order of the amount produced, canola, soya, flaxseed, and sunflower seed. Address: Market Analyst, Canadian Oilseed Processors Assoc., 1010-360 Main St., Winnipeg, Manitoba R3C 3Z3, Canada. Phone: 204-942-3408.

2120. Shurtleff, William; Aoyagi, Akiko. comps. 1993. Soya in Canada–Bibliography and sourcebook 1855-1993: Detailed information on 780 published documents (extensively annotated bibliography), 221 commercial soy products, 115 original interviews (many full text) and overviews, 93 unpublished archival documents. Lafayette, California: Soyfoods Center. 305 p. Subject/geographical index. Author/company index. Language index. Printed March 9. 28 cm. [1098 ref]
• ***Summary:*** This is the most comprehensive book ever published about soybeans and soyfoods in Canada. Its scope includes all aspects of the subject from 1855 to the present. It is also the single most current and useful source of information on this subject, since 90% of all records contain a summary/abstract averaging 164 words in length.

This is one of more than 40 books on soybeans and soyfoods being compiled by William Shurtleff and Akiko Aoyagi, and published by the Soyfoods Center. It is based on historical principles, listing all known documents and commercial products in chronological order. It features: 39 different document types, both published and unpublished; every known publication on the subject in every language–including many in French; 115 original Soyfoods Center interviews and overviews never before published. Thus, it is a powerful tool for understanding the development of soybeans and soyfoods in Canada from their earliest beginnings to the present.

Compiled one record at a time over a period of 17 years, the bibliographic records in this book feature (in addition to the typical author, date, title, volume and pages information) the author's address, number of references cited, original title of all non-English publications together with an English translation of the title, month and issue of publication, and the first author's first name (if given).

It also includes details on 221 commercial soy products, including the product name, date of introduction, manufacturer's name, address and phone number, and (in many cases) ingredients, weight, packaging and price, storage requirements, nutritional composition, and a description of the label. Sources of additional information on each product (such as references to and summaries of advertisements, articles, patents, etc.) are also given.

Details on how to use the bibliography, a complete subject and geographical index, an author/company index, a language index, and a bibliometric analysis of the composition of the book (by decade, document type, language, leading periodicals or patents, leading countries, states, and related subjects, plus a histogram by year) are also included. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Phone: 510-283-2991.

2121. *SoyaCow Newsletter (Ottawa, Canada).*1993. SoyaCow SC-20 "mooves" west to Saskatoon. 2(1):1. Jan/March.
• ***Summary:*** "The Sweet Carrot Cafe, the top vegetarian restaurant in the province of Saskatchewan, is setting up its 'micro-soydairy' and will offer fresh soymilk as well as other soy-based foods. This will not only augment their existing menu at the restaurant, but will also form the heart of their new 'SoyaCow–Health Bar Deli' slated to open along side the restaurant. This will be the second Canadian retail project in a developing franchise system. Other locations are due to open in Ontario in the fall."

Note: The Sweet Carrot Cafe is owned by George and Wendy Conquergood. The SC-20 has a cooker capacity of 20 liters. It can make 3 batches of soymilk per hour, or about 40 liters/hour. Talk with George Conquergood of IPC in Vancouver, BC, Canada. 1999. May 10. His Sweet Carrot Cafe in Saskatoon had their SoyaCow SC-20 in operation in early 1993, before Rainbow Foods in Ottawa. So Sweet Carrot Cafe was the first company to make commercial products using a SoyaCow. When George first went to Ottawa to meet Raj, Rainbow was in the process of expanding the store into new location, and building their kitchen in the health food store. But George already had a restaurant, a kitchen, and a coffee bar–named Caps Coffee Bar. Rainbow did open their little Health Bar Deli within the health food store. Rainbow didn't understand the importance of sanitation when dealing with the protein in a milk alternative. Cleaning the glass bottles properly was a horrendous job, but one that has to be done meticulously–lest bacterial spoilage occur when the bottle is refilled. Rainbow was unable to maintain consistent quality in their operation, so they had to shut down after a short time. Sweet Carrot and Rainbow used the same glass bottles, with the SoyaCow logo painted on the bottles. When they first ordered the bottles, they shared the order. Since George has his SoyaCow working before Rainbow, he did some consulting with Rainbow, through Frank Daller, to help Rainbow get started. George also developed the formulas that both companies used. He used to be on the phone with Frank on almost a daily basis. George was conceptualizing this Health Bar Deli concept as a potential franchise operation.

2122. *SoyaCow Newsletter (Ottawa, Canada).*1993. New SoyaCow logo. 2(1):1. Jan/March.
• ***Summary:*** A new version of the SoyaCow logo has been designed, and is shown here. It is a vertical oval, with the face of a cow superimposed on the large letter "S." Across the bottom, in all uppercase letters, is written "SoyaCow." The original logo was useful mostly in a wide, horizontal orientation. "The new logo is already in use on returnable glass bottles."

2123. *SoyaCow Newsletter (Ottawa, Canada).*1993. 2,000 L/H soymilk system planned. 2(1):1. Jan/March.
• ***Summary:*** "An industrial, continuous-process version of the SoyaCow is on the drawing boards and slated for development in 1994." The SC 2000 will be designed to produce up to 2,000 liters of soymilk per hour. "The project is currently under consideration by companies in North America and Europe" [such as APV-Crepaco].

2124. **Product Name:** Soymilk (Natural, Original, Maple, Vanilla, Chocolate, or Nog), Soybé Soy Ice Cream (many flavors, constantly changing), Soy Yogurt (Natural or Vanilla Flavors) tofu, and Soyanaise (soy mayonnaise).
**Manufacturer's Name:** Sweet Carrot Café–Health Bar & Deli.
**Manufacturer's Address:** 702 14th St. East, Saskatoon, SK, S7N 0P7 Canada.
**Date of Introduction:** 1993. March.
**Wt/Vol., Packaging, Price:** Bottle.
**New Product–Documentation:** *SoyaCow Newsletter* (Ottawa, Canada). 1993. Jan/March. p. 1. "SoyaCow SC-20 "mooves" west to Saskatoon." "The Sweet Carrot Cafe, the top vegetarian restaurant in the province of Saskatchewan, is setting up its 'micro-soydairy' and will offer fresh soymilk as well as other soy-based foods. This will not only augment their existing menu at the restaurant, but will also form the heart of their new 'SoyaCow–Health Bar Deli' slated to open along side the restaurant. This will be the second Canadian retail project in a developing franchise system."

*SoyaCow Newsletter* (Ottawa, Canada). 1993. April/June. p. 1-2. "SC-20 complements fine vegetarian restaurant and top natural foods store." The Sweet Carrot Cafe in Saskatoon uses a SoyaCow SC-20 to produce fresh non-beany soymilk for direct sale and formulation into value-added products. They also feature returnable glass bottles of the soymilk in several flavours. The Sweet Carrot Cafe is a fine [vegetarian] restaurant, featuring a grand piano, tablecloths, and wine. Owners George and Wendy Conquergood have added a Health Bar & Deli, made possible by a new SoyaCow. A photo shows George Conquergood with his SC-20 at the Sweet Carrot Cafe.

Talk with George Conquergood of International ProSoya Corporation (IPC) in Vancouver, BC, Canada.

1999. April 21. George started this gourmet vegetarian restaurant in 1992. In early 1993 he bought a Soya Cow SC-20 and started the Soya Cow Health Bar Deli, where (by about March 1993) he sold at least five soy products, both as part of the menu and for takeout. The soymilk for takeout was always sold in 1-liter glass bottles, with a SoyaCow logo stamped into the glass. Only the soy ice creams were sold under a brand, Soybé. The Soy Nog (soymilk flavor; which was not a brand) was introduced in December 1993, but people liked it so much that George continued to make it thereafter all year long. The soy ice cream was sold in 500 ml round hardpack plastic tubs. There were no fixed flavors; every day was a new surprise–such as Blueberry-Mint, Strawberry-Banana-Peach, and one like a Butter Pecan with nuts, etc. George is a very creative person and he likes to try new things with foods. In the garage of his home in Saskatoon he has an archival file box containing all of the recipes and notes from his restaurant days. After March 1994 George also sold Gelato Fresco, a soy ice cream made by Hart Melvin of Toronto using a SoyaCow SC-20. The soy yogurt was fermented; the two flavors were sold in 250 ml yogurt tubs. The tofu was sold pre-cut into 500 gm bricks, wrapped with plastic wrap (not packed in water), and refrigerated. The Soyanaise (soy mayonnaise) was sold in a 250 ml see-through plastic tub. Each product had a label, printed by a computer. George's dates are a little earlier than those published in *The SoyaCow Newsletter* since it typically published at least several months after the events it reported.

2125. Tanner, Jack W. 1993. The first one hundred years. Paper presented at Soybeans in Canada: Beyond 100 Years, a symposium organized by the Ontario Soybean Growers' Marketing Board. 6 p. Held 28-30 March 1993 in Toronto, Ontario, Canada at the Regal Constellation Hotel.
• ***Summary:*** An outstanding summary of soybean history in Canada during its first 100 years, focusing on key milestones and the people who made them happen. Begins with a good biography of Charles A. Zavitz, who was "the first in Canada and one of the few on the continent who changed soybeans in North America from the status of horticultural curiosity into the beginnings of the major oilseed crop in the world."

"The first recorded crop yield tests (1887) at Guelph were in his handwriting and involved trials on wheat, oats, barley, and fertilizer. When a third year was added to the diploma program which offered a degree from the University of Toronto, Zavitz took the additional year and he and four companions were the first degree graduates from the OAC in 1888. Zavitz continued in his field research endeavours and in 1893 was put in full charge of all field research, a position he held for some 35 years. In 1904, when the Field Husbandry Department (later named Department of Crop Science) was formed, he was named Professor and Head of Department."

"Zavitz began a world-wide search for germplasm of many crops for evaluation under Ontario conditions." He did pioneering work with barley, potatoes, alfalfa, and open-pollinated corn. In 1924 it was estimated that "the increases in crop yields resulting from varieties released by Zavitz had a value of 161 million dollars.

"Zavitz was also an early pioneer in the use of small plots for research." His plots were one-hundredth of an acre (rod-row). His careful research and his practice of testing each crop "for a minimum of five years enabled him to avoid much experimental error and gave his conclusions a reliability unachieved by contemporaries using one-quarter acre plots for shorter periods.

"Another unique program championed by Zavitz deserves mention before moving on to his role in soybeans. The Ontario Agricultural and Experimental Union was established in 1886. Zavitz, a student at the time, was a founding member. Membership originally was to be restricted to students and alumni of the College, however this restriction soon disappeared. The Experimental Union, driven by the efforts of Zavitz, sent packets of seed to farmers for evaluation on their farms. Notes were recorded on disease, lodging, maturity, yield and seed quality and the results returned to Zavitz for assessment. Farmers were free to increase any variety they thought to be superior. Starting with 12 members in 1886, by 1888 there were over 100 members. In 1891 2,642 packets were sent out; by 1896, over 11,000 packets sent out; and by 1924, packets had been sent to over 200,000 farmers. Thousands of farmers took train excursions to the College each year to view Zavitz's plots. In 1904 alone, between 35,000 and 40,000 farmers visited the College in the month of June. In the other direction, Zavitz and his cohorts spent a great deal of time speaking to farmers in their own communities. They travelled by train and horse and buggy. A quote from Zavitz's diary (February 11, 1887) gives some indication of his dedication in this regard. 'Prof. Brown and Zavitz to Coldstream on speaking engagement, missed connecting trains in London so they walked the 16 miles to Coldstream, taking from 9:40 p.m. until 3:15 a.m."

"In 1893, Dr. Zavitz received five soybean lines from Dr. C. Georgeson in Kansas, who had obtained seed from Japan three years earlier. After assessment of these initial lines, Zavitz set about to import many other lines from Asia. Zavitz evaluated over 100 lines over the next several years, most for a minimum of five years... In 1918, Zavitz selected a superior line from the Siberian line, Habaro No. 20405. In 1923, this line, OAC 211, became the first soybean registered in Canada." (Continued). Address: Crop Science Dep., Univ. of Guelph, Guelph, Ontario, Canada.

2126. Tanner, Jack W. 1993. The first one hundred years (Continued–Document part II). Paper presented at Soybeans in Canada: Beyond 100 Years, a symposium organized by the Ontario Soybean Growers' Marketing Board. 6 p. Held 28-30 March 1993 in Toronto, Ontario, Canada at the Regal Constellation Hotel.

• ***Summary:*** Continued from page 3. "Honours of C.A. Zavitz: First Degree Class of OAC, 1888. First Head of Department of Field Husbandry, 1904. Published in Volume 1 of Agronomy Journal, 1907, 1908, 1909. First Canadian Fellow of American Society of Agronomy, 1915. Doctor of Science (Hon.), University of Toronto, 1916. Doctor of Laws, University of Western Ontario, 1935. Inductee, Canadian Agricultural Hall of Fame, 1977."

After Zavitz's introduction in 1893, William Saunders began soybean research at the Central Experimental Farm (CEF) in Ottawa, Ontario. In 1923 Fred Dimmock started the Harrow soybean program; when he moved to Ottawa, Cass Owen took over the soybean research at Harrow. By the end of the 1930s, six soybean varieties had been registered in Canada: OAC 211 (1923), AK (Harrow) (1933, Harrow), Mandarin (Ottawa) (1934, CEF), Kabott (1937, CEF), Goldsoy (1938, OAC), and Pagoda (1939, CEF).

In 1932 some 7,781 acres of soybeans were reported in Canada, increasing to 10,000–11,000 acres by 1940.

"The first record of commercial soybean production occurred in Essex and Kent counties in 1925. The first Ontario Department of Agriculture extension bulletin to mention soybeans in 1932 listed its uses for hay, soiling crop, pasture, ensilage, seed for oil and meal, and straw. The crop was perceived by farmers as an excellent annual forage. Beans for were shipped to the Dominion Linseed Oil mill in Baden and to the first soybean crushing plant in Chatham which opened in 1934... Victory Soya Mills, constructed in 1944 in Toronto, played a key role in the development of soybeans in Ontario. The company aggressively promoted the crop in late 1940s and 1950s. The company produced bulletins, conducted yield competitions, and produced newspaper articles, movies and newsletters. It also provided extension persons, Ivan Roberts and Ralph Chamberlain to promote the crop. However, the crop was slow to expand out of the traditional 5-country area of the southwest part of the province.

"One of the most momentous occurrences in soybean development dates back to 1936 when Cass Owen at the Harrow Research Station made the original cross that ultimately resulted in the variety Harosoy. Released in 1951, Harosoy dominated the Canadian acreage for more than 35 years. It became the major variety in the U.S. and constituted 26% of the total U.S. acreage in 1966, including 42% of the crop in Illinois, 48% in Indiana, 46% in Ohio and 58% of Michigan's crop. Subsequent varieties developed by Buzzell at Harrow have continued to provide outstanding varieties to the farmers of that area.

"Another milestone in the evolution of the soybean crop in Ontario came in January 1949 with the establishment of the Ontario Soya-Bean Growers' Marketing Board. Established initially to improve marketing procedures to reduce price instability, the Board's role now includes negotiations with the trade, provision of market information relating to the oilseed industry to its members, government lobbying, market development both domestically and internationally, creation of promotional material, administration of government programs and support of research. With regard to the latter, the Board has provided approximately $1.3 million in research support in the past 10 years. The initial membership of the Board has grown from 1722 in 1949 to 17,272 in 1991."

Throughout the 1950s and 1960s, "much effort was put forward towards expanding the soybean acreage into the shorter season parts of the Province. While recognizing that weed control, lack of decent nodulation and appropriate equipment were deterrents, the major limitation was the lack of decent varieties. Bluntly put, they were dogs. The release of Maple Arrow by Harvey Voldeng from the Ottawa program represented the break that was needed to move the crop. The cross, between Harosoy and an early Swedish line, 840-7-3, was made by Buzzell for Lorne Donovan, the breeder at Ottawa who had preceded Voldeng. Dave Hume at Guelph with major support from the OMAF Plant Industry Branch mounted major research and extension programs for expansion of the crop. The crop has since created its own momentum, fueled by a whole series of outstanding early varieties developed by Voldeng at Ottawa and Beversdorf at Guelph.

"A few other names require mention. George Jones, an early promoter of the crop, weed control wizard and successful breeder, Baldur Stefansson in Manitoba who laboured for 20 years attempting to establish the crop in the west, abandoned the idea and subsequently became one of the fathers of the canola industry; and Brian Buttery at Harrow who has worked to improve our understanding of yield in soybeans.

"Special mention should be made too of the contribution of the Colleges of Agricultural Technology, especially Ridgetown. RCAT has, since its inception, provided excellent production and varietal information to the farmers of the area.

"The first private line, XK 505, was supported for registration in 1973. There are currently 4 public and 4 private full-time breeding programs in Ontario. In addition, several American-based companies evaluate and submit lines for registration the list of excellent varieties available augers well for the future.

"My role at this conference was to look back. It has been an eventful and exciting 100 years for the soybean crop and those dedicated to its expansion. But times are changing and, I expect, 'we ain't seen nothing yet'. The

20% oil 40% protein bean has served us well but there are already changes afoot in the marketplace. The soybean which was one of the first truly industrial crops must be modified to compete in the future. The development of natto beans at Ottawa and the shift of Harrow to concentrate on edible beans for export are but the beginning. Compositional changes in fatty acid distribution and protein are already underway. Changes in morphology and growth habit of the plant appear to offer new promise for higher yielding, more broadly adapted varieties. The new technologies of molecular genetics, while slow to reach soybeans, are on the verge of enabling the development of beans whose attributes may be limited only by the imagination of those of us who are over 30 years old. The future starts tomorrow. Somehow, I feel that Zavitz is looking down at all this, and, I suspect, he is smiling." Address: Crop Science Dep., Univ. of Guelph, Guelph, Ontario, Canada.

2127. *SoyaScan Notes.*1993. The world's most active countries with respect to soybeans and soyfoods, as of 1 April 1993 (Overview). April 1. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** A tally by country on the SoyaScan database (which currently contains 42,087 bibliographic references relating to soybeans and soyfoods) shows the following countries to have the largest number of listings relating to soya (over 200): United States of America 21,459, Japan 5,599 Germany 2,053 United Kingdom 1,986, China 1,844, France 1,601, India 1,222, Canada 1,112, Indonesia 993, Brazil 873, Netherlands 809, Manchuria 733, USSR 665, Italy 596, Australia 467, Korea 463, Taiwan 460, Belgium 400, Austria 375, Mexico 371, Switzerland 353, Sri Lanka 341, Philippines 323, Yugoslavia 321, Nigeria 312, Sweden 289, Argentina 244, Israel 240, Czechoslovakia 237, Denmark 225, Bulgaria 219, Malaysia 214, Thailand 214, South Africa 207, Spain 204, Russia 203.

2128. Jones, Dennis; Kuller, Lewis H.; Marckmann, Peter. 1993. *Trans* fatty acids and dieting. *Lancet* 341(8852):1093-94. April 24. [15 ref]
• ***Summary:*** These three letters to the editor comment on the following article: Willett, Walter C. et al. 1993. "Intake of *trans* fatty acids and risk of coronary heart disease among women." *Lancet* 341:581-85. March 6. Willett, the lead author of the original article, is from Channing Lab., Dep. of Medicine, Harvard Medical School, Massachusetts.

The writer of the first letter, Dennis Jones of Canada, states: "Scientists in essential fatty acid (EFA) research have long been aware of the negative effects of *trans* fatty acids on EFA metabolism, and more recently attention has been drawn to deleterious effects in adults and in infants. Warnings about health hazards of *trans* fatty acids have hitherto gone unheeded. That situation may now change, and the public should become aware that the partially hydrogenated domestic oils are, in fact, greater health hazards than dairy products and natural saturated fats."

2129. Gupta, R.P.; Gupta, R.R.; Wood, G.W. 1993. The SoyaCow resource book. Maxville, Ontario, Canada: Child Haven International. 131 p. 28 cm. [1 ref]
• ***Summary:*** Contents: Preface. 1. Introduction: Soya beans, soya milk, okara, tofu. 2. SoyaCow–Knowing it: Advantages of the SoyaCow, SoyaCow components, SoyaCow inputs, SoyaCow outputs, who needs SoyaCow, SoyaCow's economics, business plan, larger than SoyaCow machines, smaller than SoyaCow machines. 3. SoyaCow–Getting it: Preparations, ordering, receiving and unpacking, assembly, installation and testing. 4. SoyaCow–Using it: Preparation, making soya milk base, making tofu, soya yogurt (dahi), soya cream cheese, soya cottage cheese, finishing. 5. Formulations and recipes: Soya milk (dairy like, pistachio flavour, almond flavour, banana flavour, chocolate, malt, maple) tofu (tofu salad, tofu rice salad, tofu cheese squares, tofu fried rice, tofu uttapam, tofu snack sticks), soya yogurt (lassi, other sweet drinks, salted drink, raita). Figures (21 figures). Appendices: A comparison of basic soya milk processes, a sample SoyaCow cost-benefit analysis: USA/Canada, a sample SoyaCow cost-benefit analysis: India, consultants, organizations, SoyaCow training, suppliers, some SoyaCow installations, SoyaCow order form, service centres, assembly, trouble shooting guide for grinder/cooker, weekly log, periodic maintenance and repair, the SoyaCow newsletters. Address: [Ottawa, Ontario, Canada].

2130. *Ontario Export Soybeans (OSGMB).*1993. Happenings. 6(2):-2. May.
• ***Summary:*** "March 28-30, 1993 the Ontario Soybean Growers' Marketing Board in conjunction with Agriculture Canada and the Ontario Ministry of Agriculture and Food, staged 'Soybeans in Canada: Beyond 100 Years,' a symposium marking 100 years of soybeans in Canada. Over 350 delegates and 30 exhibitors made the show a tremendous success. A strong list of internationally renowned speakers drew large crowds. Mr. Tetsu Minagawa, of Mitsubishi, Tokyo, spoke on Japan's market for soyfood products. Mr. Michael Loh, Export Development Officer of the Ontario Ministry of Agriculture and Food (OMAF), highlighted the potential for soybeans in the Asia Pacific region as we approach the year 2000.

"In conjunction with the Symposium the Board sent Centennial awards to companies in the Asia/Pacific region, in recognition of their important contributions to expanding the market potential for Canadian soybeans."

Presentations were made in three countries by Michael Loh on behalf of OSGMB. The companies recognized were:

In Hong Kong: Dah Chong Hong Ltd., Vitasoy International Holdings Ltd., and Law Man Tung Trading Co. Ltd.

In Singapore: Singapore Sin Seng Lee Trading Co., Asia Corporation, and Yam Thye & Co.

In Malaysia: Yeo Hiap Seng, Chop Lee Kit Heng, Tan Ban Huat, Tung Lieng Trading Co., Thye Huat Chan, and Lun Heng. Address: Chatham, Ontario, Canada.

2131. Weiner, Michael. 1993. New developments with Amano and Yamashita (Interview). *SoyaScan Notes.* June 18. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Michael works as a consultant for Peter Joe of Sunrise Market Ltd. and with Amano Foods. He used to consult with Mandarin Enterprises in British Columbia. Now his main work is as a broker, representing various U.S. companies such as Vitasoy, Knudsen, Santa Cruz, etc. Amano still makes all of Westbrae's organic miso. Amano is trying to construct a 60,000 square foot plant. They had a joint venture with Yamashita but it fell apart. Now Yamashita is constructing their own 60,000 square foot soy sauce plant in Oregon. The ground breaking will take place in a couple of weeks. Michael does not feel that this will be much of a threat to Amano, which plans to sell a lot of Amano products in supermarkets. The market is big and growing rapidly. Soyfoods now are given large amounts of shelf space (8-16 linear feet) in the produce section of all supermarkets in western Canada (British Columbia, Alberta, and Manitoba). A major reason for this is that Mandarin and Sunrise have an excellent relationship with the people in charge of the produce section in western Canadian supermarkets. Initially Michael helped to establish some of these relationships; these companies got a few facings for their tofu. Then Mandarin added their tofu burgers. Then Sunrise added Yves Wieners and soy cheese. The products sold, which is proof that exposure will work. Michael was involved in trying to make the same thing happen in Ontario with the Loblaws chain, and in Quebec, but they were never allowed to give the program a try–not even in 1-2 stores.

Safeway supermarkets are so sold on soyfoods that they have developed special open-front, vertical, refrigerated "Tofu Products" cases that are placed adjacent to the produce case, but have a lower temperature. They are quite large and contain everything from soy drinks to tofu, soy cheese to meatless hot dogs. Soyfoods are very widely available on Vancouver Island.

Sunrise and Michael jointly import Mori-Nu tofu into Canada from Japan. Also Sunrise distributes some juice products for which Michael is the broker. Mori-Nu does not sell well in supermarkets because it's retail price is too high. Address: President, New Age Marketing, P.O. Box 39590, White Rock, BC, V4A 9P3, Canada. Phone: 604-538-0127.

2132. Eridania Béghin-Say (Ferruzzi Group). 1993. Annual report 1992. 54, avenue Hoche, BP 47108, 75360 Paris Cedex 08, France. 72 p. [Eng]
• ***Summary:*** This is the first year since its founding that Central Soya does not have its own annual report. It is now a subsidiary of Eridania Béghin-Say (whose chairman and CEO is Renato Pico) and its activities are now shown in the section of this report titled "Crushing and refining: Cereol, Central Soya." This includes Cereol Benelux (Netherlands), Cereol Deutschland (Germany), Cereol France, Cereol Iberica (Spain), Cereol Italia (Italy), Cereol Magyarorszag (Hungary), CSY Agri-Processing (USA), Central Soya Co. (USA), Central Soya of Canada, Central Soya Aarhus.

"1992 was a good year for Eridania Béghin-Say. Operating profit rose to more than FF 3.6 billion, 35% higher than the previous year, with net earnings of around FF 1.3 billion, showing a 70% increase."

"In 1992, Cereol's 19 plants crushed more than 5,400,000 tons of oilseeds, 27.3% more than in 1991. Almost two-thirds of the raw material crushed was soybeans (+13.5% over 1991), with the remainder composed primarily of sunflower and rapeseed (+62% more than in 1991)." Address: Paris, France.

2133. *SoyaCow Newsletter (Ottawa, Canada).*1993. European patent helps ProSoya's new partners. 2(2):1. April/June.
• ***Summary:*** "With the successful process patent for non-beany soymilk, ProSoya has now initiated development of the European market with the help of TAN AB of Sweden and UPDATE GmbH of Germany.

"Ted Nordquist of TAN AB, is an internationally known soyfoods production expert who is specializing in the worldwide development of the SC-2000, the 2000 L/H–continuous-process, industrial system offered by ProSoya. UPDATE GmbH is a Frankfurt-based marketing and communication company headed by Horst Daller and Rainer Wilkens. It specializes in ethical and progressive products and will develop European territories for the retail SC-20 and wholesale SC-100 systems and franchises."

Talk with George Conquergood of International ProSoya Corporation (IPC). 1999. May 10. Horst Daller is the older brother of Frank Daller, who worked for ProSoya in Ottawa, Canada.

2134. *SoyaCow Newsletter (Ottawa, Canada).*1993. Wholesale soymilk and ice cream production with SC-100. 2(2):1-2. April/June.
• ***Summary:*** "Using the economical 400 litre/hour SC-100 batch system, Moulins aux Abenakis of Ste. Clair, Quebec, was the first company to make 'SoyaCow' non-beany soymilk for wholesale distribution. Now, ProSoya has begun a new development with Gelato Fresco, a top quality, natural ice cream company in Toronto, Canada, and Milan, Italy. The first shipment of 'SoyaCow' non-dairy ice cream

has already been make, thanks to the smaller SC-20 installed as a pilot system."

2135. *SoyaCow Newsletter (Ottawa, Canada).*1993. SC-20 complements fine vegetarian restaurant and top natural foods store. 2(2):1-2. April/June.
• ***Summary:*** "The Sweet Carrot Cafe in Saskatoon and Rainbow Foods in Ottawa are the first Canadian retail sites for the SoyaCow SC-20... Both locations produce fresh non-beany soymilk for direct sale and formulation into value-added products like shakes, yogurt, pudding, okara baked goods, tofu, etc. They also feature returnable glass bottles of the soymilk in several flavours." The Sweet Carrot Cafe is a fine [vegetarian] restaurant, featuring a grand piano, tablecloths, and wine. Owners George and Wendy Conquergood have added a Health Bar & Deli, made possible by a new SoyaCow.

"The newly-enlarged 5,700 square foot Rainbow Foods in Ottawa is the largest health and natural products store between Toronto and Montreal. Owners Janet and Mike Kaplan see the production of high-quality fresh soymilk as a major feature of their full-service operation... Their "Healthy Deli" with the SoyaCow comprises over 1,000 square feet of the total business, and customers can see the micro-soydairy operation from the fast-food counter."

Photos show: (1) George Conquergood with his SC-20 at the Sweet Carrot Cafe. (2) The SoyaCow SC-20 at Rainbow Foods, owned by Janet and Mike Kaplan. Note: The SC-20 at Sweet Carrot Cafe was in operation before the one at Rainbow Foods. The soymilk made at Sweet Carrot Cafe was the first commercial soymilk made by any model of SoyaCow.

2136. **Product Name:** White Wave Tofruit (Soy Yogurt) [Raspberry / Framboise].
**Manufacturer's Name:** White Wave, Inc.
**Manufacturer's Address:** 6123 E. Arapahoe Rd., Boulder, CO 80303. Phone: 303-443-3470.
**Date of Introduction:** 1993. June.
**Ingredients:** Water, organically-grown soybeans [made into soymilk], brown rice syrup, concentrated pineapple, peach and pear juices, raspberries, tapioca starch, natural fruit flavors, vanilla, pectin, guar gum, carrageenan, natural colour, citric acid, bacterial culture. Our soybeans are organically grown and processed in accordance with the California Organic Foods Act of 1990.
**Wt/Vol., Packaging, Price:** 6 oz plastic (HDPE) cup.
**How Stored:** Refrigerated.
**Nutrition:** Per 6 oz.: Calories 162 (600 kj), protein 6.0 gm, carbohydrates 30 gm, fat 2.0 gm.
**New Product–Documentation:** Label brought by Steve Demos. 1993. July 31. 3.25 inches diameter at lid, 3 inches high. This product is very similar to White Wave Dairyless except that it is labeled for the Canadian market. Red, dark blue, turquoise, and white. Front panel: "Made with live bacterial cultures including acidophilus and bifidus. Cultured soya dessert." No writing appears on the lid.

2137. Bolduc, Bill. 1993. Current work with soymilk and organically-grown soybeans (Interview). *SoyaScan Notes.* Aug. 16. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Bill Shurtleff tells Bill Bolduc that he has heard that Bolduc's company is now making soymilk for Westbrae Natural Foods. Bolduc admits that this is correct. Shurtleff says that he cannot imagine how Bolduc is doing this, since a modern soymilk plant typically costs about $1.5 million. Bolduc answers that he purchased the soymilk plant owned by Grove Country Foods in an auction on 4 April 1993. This plant used the University of Illinois process for making soymilk.

Note: Grove Country Foods, USA, is located at 720 S. Main St., Columbus Grove, Ohio. Phone: 419-659-5636 (office) or -2920 (plant). The two main people involved in the company were Dr. Carl Hastings and Prof. Alvin I. Nelson, both food scientists from the University of Illinois. The basic idea of the company was to commercialize new soy products and processes (such as soynuts, soy yogurt, soy ice cream, and soymilk) developed at the University of Illinois. By December 1988 they were in test production of several products but were in need of funds for commercial production and marketing. In early 1989 Grove Country Foods Canada Inc. (located in Ridgetown, Ontario, Canada) introduced Astronuts, a type of soynuts apparently made by some other company, but the company went bankrupt after 1-2 years.

Bill has modified the Illinois process for making soymilk extensively. For example, he removes the okara from the soymilk. Completing these modifications has taken several months, and his company is "now in a start-up mode making soymilk." Their refrigeration was under-sized so they lost several loads of product to spoilage. This week they are installing another compressor, etc. The system now works very well if they go slowly, but they need to be able to produce twice as much soymilk as they presently can before he will be satisfied. Now it takes several days to produce a tanker full of soymilk. Westbrae is being patient and supportive even though the process is "a bit bumpy."

Bill is only making Westbrae's regular soymilks–not their Malteds, which he thinks are still made by Hinoichi in Los Angeles. The only soymilk Bill makes is Westbrae's. He ships this soymilk in a tanker to a separate facility nearby in the Midwest that packages the soymilk in Tetra Brik Aseptic cartons for Westbrae. Westbrae now has their regular soymilk (the same product sold under the same brand) made by two companies (Pacific Foods of Oregon and Bill's Organic Processing Corp.) using two different processes. Bill started because Pacific ran out of capacity. Westbrae

likes the flavor of Bill's soymilk as well as they like Pacific's–even though Pacific's technology is much more expensive than Bill's. Bill has dramatically altered the Illinois process but he has decided not to try to patent his altered process.

Within about 2 months Bill expects to have a new soymilk product on the market with another partner (similar to Westbrae, but whose name is confidential) in a new package [perhaps an extended shelf-life (ESL) gable top carton]. After that, Bill hopes to diversify his customer base and his product mix. To do that he hopes to start by making a fresh, UHT Processed, refrigerated soy-based frozen dessert mix (for soft-serve soy ice cream) packaged at another facility, located very nearby, in 2-gallon bags with a 60-day shelf life.

Bill sees the future of soymilk packaging as being in the relatively new extended shelf life gable top carton that is sold refrigerated. This package, which is made by Tetra Pak and Evergreen, is significantly less expensive than the traditional Tetra Brik carton. It is now becoming quite popular in the Midwest and the East Coast because of its lower cost. It can cut at least $1.00 off the wholesale price of a case (12 quarts) of soymilk, which leads to even bigger savings at the retail level. And the product has a shelf life of 60-90 days refrigerated. Co-packers nearby own the new gable-top packaging equipment. Most of America's major soymilk companies are looking carefully at this package, it requires a whole new distribution system–refrigerated trucks. Bill knows that there will be a soymilk product on the market in the extended shelf life gable top package by this fall. Bill will make it for another company. The rest is confidential. He just ran the first test batch last Thursday, and now he is doing shelf-life tests. His smaller company has several advantages over the bigger soymilk companies; his company is very lean and can move very quickly. He is not controlled by any multinational corporations.

Bill has a separate company named Organic Marketing that exports organically grown soybeans to Europe; he started Organic Marketing in about 1989 and it was the precursor to Organic Processing. Bill was acting as marketing coordinator for the Ohio Ecological Food and Farm Association (the organic growers of Ohio). First he sold a lot of organically grown soybeans to Dan Burke of Pacific Soybean & Grain, then he started exporting. He met Jerry Fowler, a British-born man who has a company named Manna International in Ontario, Canada. Bill likes very much to do business with Jerry because he has a very good overview of the market, is cooperative with the growers, and pays good money to the growers for organic soybeans. Bill exports his organic soybeans via Montreal to England, where they are used by the Haldane Foods Group (which is owned by ADM).

Update: Talk with Ron Roller, CEO of American Soy Products (ASP). 1993. Sept. 4. Bill Bolduc is making plain soymilk and shipping it up to Grand Rapids, Michigan, for formulation and Tetra Brik packaging for Westbrae. ASP negotiated with Westbrae for a long time, but Westbrae finally went with Pacific Foods and Bolduc; there were many reasons for this but they are mostly political. Address: President, Organic Processing Corp., 305 N. Walnut St., Yellow Springs, Ohio 45387. Phone: 800-647-2326 OF.

2138. Stuber, Lorenz; Stuber, Ellen Figueroa de. 1993. Re: Work with soya, Soyane, and Comida Para Todos in Guatemala. Letter to William Shurtleff at Soyfoods Center, Aug. 20. 3 p. Handwritten. [Eng]

• ***Summary:*** "We would like to thank you for all of the information and inspiration that we got from your book *The Book of Tofu*. We are vegetarians and for years we have been making and eating tofu.

"In 1985 we started a little project to help the poor people in Guatemala. We had a little vegetarian restaurant in Panajachel and we distributed the daily leftovers to people that need food. At the same time we started a little project of food distribution at the garbage dump in Guatemala City. We helped to fund our project by selling Guatemalan hand crafts in Switzerland. There we met some people who were interest in our work and with their financial help we were able to expand our project (Comida Para Todos–Food for Mankind).

"We presently go 4 times each week to the garbage dump and to Peronia (a slum outside Guatemala City). Each day we take a hot meal made with rice, vegetables, beans, and tortillas (containing some okara) plus a fruit drink to about 150 children and poor people.

"This year we started a program in 2 little schools in the countryside, where we take whole wheat bread (containing some okara), marmalade, and fruit-flavored soya drink (soya milk) daily to 150 children. We distribute the food at our own cost. We have a little piece of land 30 km from the city where we built a big kitchen for this project and also for our own income. We would like to sell soy products on a large scale at inexpensive prices which could help relieve the malnutrition of so many Guatemalan people.

"We have done some tests in making soya milk (natural, fruit flavored, and chocolate), which we store in plastic bottles and refrigerate. But it usually spoils within 3-4 days, and sometimes even gels and spoils the day after it was made. "We got a cheap vacuum packaging machine for packing natural tofu, fried tofu, and soyaburgers, and now we have started experiments to see how long these products will stay fresh under refrigeration." They order a copy of *Tofu & Soymilk Production* and ask for advice in solving their problems.

A color photo shows a little Guatemalan boy pouring soymilk from a large teapot into two 1-liter plastic bottles held by little girls. Other kids are standing around drinking soymilk out of cups.

Follow-up response to questions from William Shurtleff of Soyfoods Center. 1993. Oct. 9. Since 1985 they have known about the soy dairy (which Plenty Canada had helped to establish) in San Bartolo, Solola, Guatemala. In July 1985 they started buying tofu and soy ice cream from San Bartolo for their vegetarian restaurant in Panajachel. They fried the tofu and sold it at the restaurant. In July 1989 they started to make tofu, soymilk, tortillas with okara, whole wheat bread with okara, and soyaburgers. In January 1993 they established Soyane and started to sell the first four of these foods, which they make at Nueva Goverdhana, km. 34 Carretera hacia Antigua, Santa Lucia Milpas Altas, Guatemala. Phone: 030-7179 / 030-7181. They are still working on developing labels; a sample of a generic label (which can be used on any of their soyfood products) is enclosed. As of October 1993 they sell the following amounts of each soyfood product: Tofu 42 kg/week (sold mostly to Korean people), soymilk 350 liters/week (distributed to 150 school children), tortillas with okara 15 kg/week (distributed to the people at the dump), and whole wheat bread with okara (110 kg of which is distributed to school children). Address: Soyane, Comida Para Todos, Apdo. Post. 2812, Guatemala City, Guatemala. Phone: 030-7179 or 030-7181.

2139. *Ontario Soybean Growers' Marketing Board Newsletter.*1993. Market clout for [U.S. soybean] farmers: Symposium highlight. Aug. p. 2.
• ***Summary:*** Thousands of U.S. soybean growers have joined Marketing Plus, "a new kind of marketing co-op that gives them a strong enough voice to counterbalance the marketing clout of industrial buyers. Steve Halloran, Nebraska farmer and president of the U.S. National Farmers Organization, said the co-op will gain market control over 15 percent of the U.S. soybean, corn and wheat crops. Halloran thinks thousands more will start selling their crops through the three year old Marketing Plus plan. He estimates the plan will sign up 30,000 of the 285,000 full-time farmers who produce 85 per cent of U.S. agricultural output. 'That's a very feasible goal,' Halloran said. 'We're doubling our numbers every 30 weeks.'

"To join, farmers tell Marketing Plus how many bushels they'll sell through the plan, where they'd like to deliver the crops, and at what time of year they'd like to receive sales income. Farmers pay a nine-cent a bushel marketing fee. The program lets farmers concentrate on how to produce their crops, while leaving the complex and often emotionally-fraught job of selling their crops to experts at Marketing Plus, Halloran said.

"Studies in Iowa show Marketing Plus has consistently sold in the top third of the market, while only 22 per cent of farmers who sell their own crops sell that high. Indeed, 45 per cent of farmers sell year in and year out into the bottom third. That means that many farmers who sign up for Marketing Plus automatically get better returns, Halloran said. But, he added, that's just the start.

"As the plan gains control over more bushels, it'll have more market clout and be able to negotiate more big-volume sales, he said. It will also give farmers an alternative so they won't be pressed to sell into local market gluts, since the co-op will be big enough to ship large quantities to deficit areas." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2140. Tenuta, Albert. 1993. Soybean cyst nematode. *Ontario Soybean Growers' Marketing Board Newsletter.* Aug. p. 2.
• ***Summary:*** "The soybean cyst nematode (SCN) has been a major pest of soybeans for at least a century and maybe much longer. It was first reported in Japan in 1915 and since has been found in Egypt, Korea, China, Taiwan, Columbia, Argentina, Brazil (unconfirmed), the United States and Canada. In 1954, the nematode was found for the first time in North America in Hanover County, North Carolina. This particular area has a history of growing flower bulbs imported from Japan. The first report of soybean cyst nematode in Canada occurred in two fields in Kent County in 1987 and has since been identified in five other counties."

"What is soybean cyst nematode?... It is called a cyst nematode because the swollen, egg-filled adult female (200-600 eggs) is referred to as the 'cyst stage'." Address: Ridgetown College of Agricultural Technology, Ridgetown, ONT, Canada.

2141. Todd, Daniel; Zhang, Lei. 1993. Political and technical factors impinging on port operations: The case of Manchuria. *GeoJournal* 30(4):441-54. Aug. [28 ref]
• ***Summary:*** "Five key events have shaped port-hinterland relations in Manchuria, and accordingly, have dictated the scale and scope of port operations. They are, in chronological order: (1) The Treaty of Tientsin and the attendant opening of Newchang (Yingkou) to foreign trade in 1862. (2) The lease to Russia in 1898 of the tip of the Liaodong peninsula and the founding thereon of the port of Dalny (Dalian). (3) The seizure of Dalian by Japan in 19O5. (4) The closure of Manchuria's ports to foreign trade with the accession of communist rule in China in 1949, and (5) The reversal of that policy in no uncertain terms during the 1980s consequent upon China's conversion to "open port" thinking.

"Scarcely acknowledged because less perceptible, changes in the technology governing the characteristics and employment of ships have been equally critical in regulating port operations in this part of northern China. In particular, the twin driving forces leading to ship enlargement and specialisation have induced fundamental reorganisation of both waterfront and inland transfer facilities."

In 1907, the Japanese opened two ports on the Yalu river: Dandong and its outport of stillborn Tatungkow. Dandong, by far the larger of the two, was designed to take small steamers of 2,000 tons and as a transshipment point for Yalu River junks. Yet it was constrained from the outset by its location 40 km from the mouth of the Yalu. By 1917 it exported mostly [soy] beans and bean cake.

Figures show: (1) Map of contemporary Manchuria with major ports, cities, railroads, provincial boundaries, and mineral-rich areas. (2) Early port trade of Yingkou and Dalian. Dalian trade began in 1907 and passed Yingkou in about 1912. (3) Today's port facilities of Dalian. (4) Port throughput of Dalian and Yingkou after 1952; Dalian has grown rapidly to 49.5 in 1990, compared with 2.37 for Yingkou. (5) Map of hinterlands of Dalian and Yingkou ports. Address: Dep. of Geography, Univ. of Manitoba, R3T 2N2 Winnipeg, Manitoba, Canada.

2142. *SoyaCow Newsletter (Ottawa, Canada).*1993. El Salvador Project for Plenty Canada. 2(3):2. July/Sept.
• ***Summary:*** "Two more SoyaCows were recently ordered by the Canadian branch of Plenty. This organization, known worldwide for its humanitarian agricultural reform programs, is installing the SC-20 systems in San Salvador. A local El Salvador program manager has been brought to Ottawa for hands-on system training."

2143. *SoyaCow Newsletter (Ottawa, Canada).*1993. Child Haven hires a Ph.D. for SoyaCow project in India. 2(3):1-2. July/Sept.
• ***Summary:*** Child Haven International, charitable organization based in Maxville, Ontario, Canada, has hired Ratan Sharma, a PhD in dairy science, "to look after the 17 SoyaCows in India which were acquired with the help of the Canadian International Development Agency over the past several years. Dr. Sharma will be responsible for setting up The SoyaCow Centre in India." He will ensure that all the SoyaCows in India "function profitably to provide employment to women by selling protein-rich foods at affordable prices.

"Dr. Sharma has specialized in the development of soymilk-based Indian foods, especially sweets. The Centre will assist the Indian SoyaCow manufacturer in marketing the machine. In addition, it will provide operator training, public education, product development and marketing assistance, and SoyaCow servicing. The Centre's location is yet to be decided."

2144. *SoyaCow Newsletter (Ottawa, Canada).*1993. Myanmar (Burma) soya food project. 2(3):2. July/Sept.
• ***Summary:*** "At the initiative of the California-based firm, Zin International, a SoyaCow SC-20 system has been sent to Rangoon for a pilot soyfood project. Zin International is headed by Thet Zin, a former United Nations Official in the Food and Agriculture Organization (FAO). He and his son and partner, Adalbert, are spearheading a grassroots agricultural reform initiative in Myanmar which they hope will eventually spread into other countries in Indochina."

2145. *SoyaCow Newsletter (Ottawa, Canada).*1993. $20 billion soymilk market potential worldwide. 2(3):1. July/Sept.
• ***Summary:*** In Canada alone the potential for soymilk sales is over $400 million. In Canada, the per capita consumption of fluid dairy milk (not including ice cream, yogurt, cheese, etc.) is about 100 litres a year. Since 5 million Canadians have lactose intolerance (according to McNeil Consumer Products, Guelph, Ontario), these people could potentially be consuming soymilk at the same rate that others consume dairy milk, amounting to 500 million litres worth about $400 million. This translates into a $4 billion potential in the USA, and conservatively $10 billion worldwide. Soymilk consumption in the form of non-dairy desserts, yogurt, and cheese could easily double this estimate.

"Why then is the current annual consumption of soymilk a meager 0.13 litre, or 0.65 litre for the lactose tolerant population?

"The answer to this question is related to the quality and cost of the soymilk available currently in the market." The soymilk sold in Canada by Eden Foods, Vitasoy, and Westbrae is expensive–$2.00 to $3.00 per litre compared with $1.25 for fresh dairy milk.

2146. Austin, Ruth; Miller, Carolyn. 1993. Hercules Incorporated and HVP (Interview). *SoyaScan Notes.* Oct. 5. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Hercules Incorporated acquired the plant at 79 E. State St., Harbor Beach, Michigan 48441, and they manufactured HVP there for many years. They sold their HVP operations in Aug. 1990 to Champlain Industries Inc. (31 Styertowne Rd., Clifton, New Jersey 07012. Contact Joe Hresko. Phone: 201-778-4900). The plant is still in Harbor Beach and most of the HVP are still manufactured there, but orders should be placed with Clifton, New Jersey. The company also makes autolyzed yeast products in Clifton, New Jersey. Champlain Industries is a Canadian-owned company. The parent company is Champlain Industries Ltd. with headquarters at Cornwall, Mississauga, Ontario, Canada.

Carolyn Miller, who works for Hercules, coordinated the writing of a history of the company, which began on 1 Jan. 1913 as a manufacturer of explosives. It was created as a result of a divestiture by the Du Pont Co. The book was actually written by business historians. Address: Hercules Incorporated, Hercules Plaza, Wilmington, Delaware 19894. Phone: 302-594-5000.

2147. *At Guelph (Ontario, Canada).*1993. Charles Zavitz legacy lives on as Crop Science marks 25 years. Oct. 13.
• ***Summary:*** Contains a brief biography of Dr. Zavitz, a crop science pioneer at OAC. A large photo shows the roll-top desk used by Dr. Zavitz, which has been donated to OAC by his grandson, Jim Zavitz (shown seated in front of the desk). Prof. Jack Tanner, Crop Science, is shown to the left of the desk.

2148. *At Guelph (Ontario, Canada).*1993. Soybean research begins second century: Research report. Oct. 13.
• ***Summary:*** A century ago, in 1893, Guelph crop science pioneer Charles Zavitz introduced soybeans to Ontario [and to Canada]. Soybeans "have become one of the province's major agricultural success stories. To celebrate the anniversary, the Ontario Soybean Growers Marketing Board presented a plaque to the Department of Crop Science on Oct. 6 as faculty and staff met to mark yet another campus milestone–the 25th anniversary of the Crop Science Building, a facility inspired by Zavitz's research efforts. Representing the soybean growers was Susan Iler, executive assistant, and Rod Ricker, chairman of the board's research committee."

"Today, soybeans are one of Ontario's biggest crops... In the past decade, Ontario soybean production has more than doubled to 1.76 million acres. Soybeans now occupy as much land as the province's green corn crop. Average yields have jumped more than 60 per cent, making soybeans an incredible success story in Ontario Agriculture."

Prof. Jack Tanner, who runs the soybean research program in the Dept. of Crop Science, says that the development of short-season, high-yield cultivars is a major plant-breeding achievement. The Guelph program is one of four public soybean breeding programs in Ontario province.

2149. Roller, Ron. 1993. The soymilk and rice beverage markets in the USA and Canada (Interview). *SoyaScan Notes.* Oct. 19. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Ron has some new very accurate and reliable numbers which show in 1992, in the USA and Canada, about 8.1 million gallons of soymilk and 1.4 million gallons of rice milk were sold. In 1993 about 9.8 million gallons of soymilk and 2.3 million gallons of rice milk were sold. The total amount sold in Canada is quite small compared to that sold in the USA.

When people who have never tried a non-dairy beverage before are served both rice milk and soymilk, they tend to prefer the rice milk–because it is sweeter and it's not soy.

In 1992 the amount of rice milk (rice beverage, including amazake) sold in the USA and Canada was 14-15% of the amount of soymilk sold by volume (gallons). The percentage has increased by an estimated 4-5 percentage points since then. The overall market for both soy- and rice drinks in 1992 was about 9.5 million gallons–a slight decrease from 1991. For the first 6 months of 1993, volume is up about 27% over the same period in 1992, and the total market is projected to be about 12.1 million gallons in 1993.

Looking at the individual soymilk manufacturers, Eden's soymilk production is experiencing strong growth. In the natural foods market, Ron thinks that Westbrae is ahead of Vitasoy. If you include the Oriental market, Vitasoy may be ahead of Westbrae. Vestro (which owns Westbrae) is a publicly owned corporation, so their financial data is available to the public. Address: President, American Soy Products, 1474 N. Woodland Dr., Saline, Michigan 48176. Phone: 313-429-2310.

2150. AGP–Ag Processing Inc a cooperative. 1993. Annual report: Partners in food production. 12700 West Dodge Road, P.O. Box 2047, Omaha, Nebraska 68103-2047. 20 p. 28 cm.
• ***Summary:*** Net sales for 1993 (year ended Aug. 31) were $1,218.614 million, up 8.2% from $1,126.667 million in 1992. Earnings before income taxes: $44.659 million, up 3.3% from the $43.236 million in 1992. Contains a 10-year summary of consolidated operating and financial statistics.

On the inside front cover is a historical summary of the most important events each fiscal year from 1983 to 1993. In 1993 Omaha corporate headquarters staff moved into their new building at 12700 West Dodge Road in Omaha; it has 85,000 square feet and is located on more than 14 acres in Omaha. A color photo shows the building. Another color photo shows a truck tanker with the Soyasign and "Soyoil: America's #1 vegetable oil" on the side and back.

AGP also acquired a vegetable oil refinery in Sherman, Texas (formerly owned by Kraft) and a grain terminal in Atchison, Texas–"which will provide better access to barge transportation and improve arbitrage." The refinery acquisition enabled "AGP to shift a substantial portion of refined vegetable oil production from St. Joseph to the new facility and to Denison, Texas."

AGP now has five primary businesses, each of which was profitable in 1993: (1) Soy processing continues as AGP's core business; it includes the milling of soybean flour [Soy Flour Division], and AGP trucking. Reduced shipments of soybean meal to the former Soviet Union has a negative impact. (2) Refined oils [Vegetable Oil Division], with three vegetable oil refineries at St. Joseph, Missouri, and at Denison and Sherman, Texas. (3) "Grain. The primary activities are grain elevator operations and grain merchandising, which include marketing agreements with local cooperatives. Exports and profits from them are growing." (4) "Feed. Comprised primarily of Supersweet feeds in the United States and Masterfeeds in Canada," including "Agri Center operations in the United States and

poultry operations in Canada." In 1937, Supersweet Feeds started making feed in Redwood, Minnesota. Today the company has 18 manufacturing plants. Masterfeeds started more than 65 years ago in Canada. (5) "Pet Foods [Division]. This business area manufactures and markets pet foods through private labels (AGP specialists develop the formulas), co-packing arrangements (the customer develops the formulas), and our own branded products."

"AGP is a young company. The first five years were dedicated to survival and to competing against the market influences of large, private grain and processing firms in the soybean and soybean meal markets. We believe that producers [farmers] must be represented by their cooperative in market-making areas in order to maximize their returns [profits]. AGP is dedicated to this goal."

The horrendous 1993 floods shut down rail shipments for a long time. The AGP transportation "fleet now includes 1,625 rail cars, 86 semi-tractors [semitrailers], and 101 trailers of all sizes.

In October 1992 "the Chicago Board of Trade [Illinois] changed the soybean meal contract from a low protein contract to a high protein contract." This was an historical development and "a learning experience because historical soybean meal basis levels became obsolete and new contracts moved toward actual delivery levels that have evolved over the last decade." The required some internal accounting changes, which will benefit AGP.

"Export sales: The Ag Products Division has continued to increase direct sales of feed ingredients into foreign countries. During the past year 250,000 tons of soybean meal were exported to more than 14 countries." However, "export sales have not regained the level that existed before the breakup of the Soviet Union."

Soybean hulls are now "pelleted in Sergeant Bluff and Eagle Grove, Iowa. They are marketed domestically and for export."

Page 16, titled "AGP businesses." Shows the location of every AGP business, organized by business type (such as Soybean processing, Vegetable oil refining, Feed manufacturing, Grain elevators, etc.). Address: Omaha, Nebraska.

2151. Chirrey, Shawn. 1993. The Zavitz legacy. In: Crop Science: A Green Legacy, A Green Future. 1993. Guelph, Ontario, Canada: University of Guelph. 23 p. Oct. See p. 4. Illust. 28 cm.

• ***Summary:*** This publication, in magazine form, is a commemorative issue marking the 25th anniversary of the opening of the Crop Science Building and the Elora Research Station (located about 10 miles northwest of Guelph). Contains a brief biography of Charles Zavitz. Across the top one-third of the page, a black-and-white photo (courtesy of University of Guelph Archives) shows Charles Zavitz standing at the right and holding a clipboard on which he is writing. He is looking to the left at two men who are bundling sheaves of crops. In 1924 he "was on his way to becoming one of the great pioneers of Canadian agriculture, and the standards he was setting created a legacy that would firmly establish the University of Guelph's Department of Field Husbandry–and later, the Department of Crop Science–as one of the world's leading centres of crop research and innovation." Address: Guelph, Ontario, Canada.

2152. DeClercq, D.R.; Daun, J.K.; Tipples, K.H. 1993. Quality of Canadian soybean–1993. *Canadian Grain Commission, Crop Bulletin* No. 210. 9 p. Undated. [1 ref. Eng]

• ***Summary:*** Contents: Introduction. Weather and production review. Quality data. Methods: Samples, oil content, protein content, fatty acid composition, iodine value. Acknowledgements.

Figures show: (1) Map of Southern Ontario showing counties from which 1993 soybean survey samples were received. (2) Annual mean oil and protein content of Canadian soybean–1983-1993, Grades No. 1 and No. 2 Canada combined (oil averages 20.5%; meal 41.9%).

Tables show: (1) Production statistics for soybeans in Canada, 1983-1993 (seeded area {ha}, production {tonnes}, yield {tonns/ha}). (2) Quality data for soybean harvest surveys No. 1 and No. 2 Canada grades: 1983-1993 (oil content, protein content {%}). (3) Quality data for 1993 Ontario soybean crop by grade (Nos. 1-3). (4) Oil and protein content of 1993 Ontario soybeans by county and grade. (4) Oil and protein content of 1993 Ontario soybeans by county; No. 1 and No. 2 Canada grades combined. (5) Oil and protein content of 1993 Ontario soybeans by variety; No. 1 and No. 2 Canada grades combined. (6) Fatty acid composition for 1993 Ontario soybeans by variety; No. 1 and No. 2 Canada grades combined. (7) Soybean varieties registered in Canada: Oilseed type. Natto type (3 NattoKing and 1 Nattosan varieties). Tofu type (Harovinton, KG 91, and TK 89). Address: 1. Chemist; 2. Research scientist; 3. Director. All: Grain Research Lab., Canadian Grain Commission, 1404-303 Main Street, Winnipeg, Manitoba R3C 3G8, Canada.

2153. *Ontario Export Soybeans (OSGMB).*1993. Michael Loh appointed coordinator of export development. 7(1):3. Nov.

• ***Summary:*** "Canada's soybean industry has set a goal of doubling exports to the Asia / Pacific region from $25-30 million annually to $60 million by the year 2000. A three year marketing plan has been developed by the Canadian Soybean Export Promotion Committee. In August, Michael Low was contracted to work on a one quarter time basis as the export development co-ordinator. Michael is on secondment from OMAF, where he is a Market

Development Officer. Michael has over fifteen years of experience in the Asia / Pacific region, including a five-year posting in Tokyo.

"Michael's appointment reflects a new approach in federal / provincial cooperation to combine resources through partnerships in pursuit of export opportunities by industry." Address: Chatham, Ontario, Canada.

2154. Kashama, Johnny. 1993. Re: Projet Miso in Kigali, Rwanda. Questions answered on Soyfoods Center questionnaire and returned to SC on 21 December 1993. 3 p. Handwritten, with signature. [Eng]
• ***Summary:*** The following is based on a interview with Mr. François Munyankindi of Projet Miso (B.P. 2018, Kigali, Rwanda). Projet Miso (Project Miso), was founded on 1 Oct. 1990 to manufacture miso and to contribute to the improvement of the diet of the people of Rwanda. It was founded by Mrs. Suzanne Dionne of the *Fonds de Contrepartie Rwanda-Canada*, which is the owner. It is a cooperative venture between Canada and the government of Rwanda. The company began to ferment red miso in 1992 and to sell it in April 1993; it now makes red miso (340 kg/week), tamari (14 liters/week), and shoyu (it is still in the fermentation and has not yet started to be sold). Miso is the best-selling product of the three, with sales of 102,000 Rwandese francs per week (1 U.S. dollar = 145 francs). They learned the process by studying *The Book of Miso* and *Miso Production* by Shurtleff and Aoyagi. The company employs 11 people: 1 manager, 6 production workers, and 4 office workers and others. The company has 290 square meters of production space and 27 square meters of office space.

Mr. Munyankindi thinks [and he is correct!] that this is the first company in Africa to make and sell miso, tamari, or shoyu. The miso is accepted by the local people. "As you know, miso is a medicinal food and it is recommended by many physicians." Address: c/o Tofu–Rwanda, P.O. Box 1906, Kigali, Rwanda. Phone: (250) 76730.

2155. *Agri-Book Magazine (Exeter, ONT, Canada).*1993. Beans in Canada. 20(2):1-20. Dec.
• ***Summary:*** This entire special issue is about soybeans in Canada, with emphasis on soybean production. The magazine is printed with soy ink. Articles include: Making production profitable. The key to success in soybeans (ad for Pursuit herbicide by Cyanamid). Time savings are considerable [with no till]. Machinery management: Handling high residue. Soybean board activities–An active year: 1993 Ontario soybean marketing agreement, export market development, Japanese soybean mission visits Ontario, Japanese soybeans for food use, Minimum Compensatory rates gone in 1994, board fees reduced to $0.90 per tonne effective 1 Sept. 1993, Canada's centennial symposium, soybean research and variety development. Soybean planters and drill reviewed. Be prepared for control of different weeds.

A table (p. 12) shows the sources of Japan's soybeans used for food in 1993: USA 922,000 tonnes, China 200,000 tonnes, domestic Japanese 170,000 tonnes, Canada 40,000 tonnes.

2156. Bria, Rosemarie Dorothy. 1993. Not dogs anyone? Meatless market goes mainstream. *E: The Environmental Magazine* 4:48. Dec. *
• ***Summary:*** Includes example of meatless product by Yves Veggie Cuisine.

2157. Ontario Soybean Growers' Marketing Board. 1993. Annual report. Box 1199, Chatham, ONT N7M 5L8, Canada. 27 p. Dec. 28 cm.
• ***Summary:*** This is a report for the year 1993. Contents: Mission statement. Chairman's message (Ron MacDougall). Secretary manager's message (Fred Brandenburg, Dec. 1993). OSGMB summary of major activities in 1992. Auditor's report and balance sheet. 1993 soybean & research funding (incl. breeding of soybeans for tofu and natto). Ontario soybeans–supply and demand, 1990-1993. Soybeans: Area, production and farm value, by county, 1992, with provincial totals [including county and district totals], 1986-1992. Ontario marketings, 1990-92. Ontario soybeans: Production, crushings, imports, exports. 1992 crop year marketings by county. Ontario soybean production history, 1942-1993. Ontario soybean exports by destination in metric tons. Soybean meal: Canadian imports and exports. Soybean oil: Canadian imports and exports. Quality of the 1992 soybean crop by county (in terms of mean oil content and mean protein content). Cash prices for Ontario soybeans (1990-1994). Ontario basis values (cents over futures). Weekly adjusted producer basis. Soybean supply and demand, 1990-1994: USA, world. OSGMB appointments for 1993 (officers and committees). 1993 district committee members of soybean board. Address: Chatham, ONT, Canada. Phone: 519-352-7730.

2158. *SoyaCow Newsletter (Ottawa, Canada).*1993. Russian Soybean Association launches soyfoods initiative. 2(4):1. Oct/Dec.
• ***Summary:*** In December, Krasnodar, a city in southern Russia, hosted a warm reception for the first Soya Cow ever to penetrate the former Soviet Union. Krasnodar is the center of a major agricultural "breadbasket" for Russia and soybeans are a leading local crop–which has traditionally been grown mostly for animal feed and oil extraction.

The Russian Soybean Association, ASSOY, had arranged for a SoyaCow demonstration, attended by local staff, VIPs, and the media. "The line-ups for samples of fresh soymilk and tofu proved that an entire new food category could be embraced spontaneously by one of the

world's major cultures." A photo shows Frank Daller demonstrating SoyaCow to Alexander Podobedov, director of ASSOY.

Note: Talk with Frank Daller of The SoyaCow Centre. 1994. Aug. 22. Mr. Podobedov (pronounced po-DOE-buh-doff) can be contacted at ASSOY, Ul. Mirra 28, 350063 Krasnodar, Russia. Phone: (7) 8612-525614; Fax (7) 8612-540081.

Krasnodar is in southern Russia at about 45º N latitude (about the same latitude St. Paul, Minnesota), just east of the Black Sea. It is the capital of the Krasnodar Krai, a Territory of the Russian S.F.S.R.

2159. **Product Name:** Soymilk.
**Manufacturer's Name:** Deli France Refreshment Services.
**Manufacturer's Address:** 79 Blue Spruce St., Brampton, ON L6R 1C3, Canada. Phone: (905) 799-0197.
**Date of Introduction:** 1993.
**New Product–Documentation:** Letter (fax) from Jimmy Chong, followed by a phone call. 1993. Nov. 8. He and Michelle Cheng (both of whom are natives of Singapore) currently make soymilk which they sell to catering services.

2160. Harcan Kingsoya Co. Ltd. 1993. Veg-A-King (Brochure). Ontario, Canada. 4 p.
• ***Summary:*** This is a portfolio-style leaflet with one insert describing Veg-A-King soy sauce. "Harcan Kingsoya Co. Ltd. is a Chinese/Canadian joint venture company set up to bring you authentic soyfoods and exotic sauces. Our Chinese partner is a leading food manufacturer and exporter in Heilongjiang Province, China." The company has established a manufacturing plant in Scarborough, Ontario, Canada. The brand name is Veg-A-King.

"Veg-A-King soy sauce is our flagship product. We use a traditional recipe which has a long history in China. Brewed naturally from premium soybeans, wheat and bran, it contains no artificial colours or added flavourings."

The company also makes an impressive line of 17 meatlike soyfoods products such as Vege-Beef, Vege-Chicken, and Vege-Shrimp. Pressed tofu is the basic ingredient of these foods. "Through further processing it can be shredded, formed, steamed, deep-fried or smoked to make different delicious foods" for vegetarians. Premium quality Canadian soybeans are used in manufacturing soymilk, tofu, and dried bean curd.

Two photos show foods being made in the factory. Address: 33 Casebridge Court, Units 5&6, Scarborough, ONT M1B 3J5, Canada. Phone: (416) 283-8328.

2161. **Product Name:** [MagiSoy (Soy Cheese)].
**Foreign Name:** MagiSoy.
**Manufacturer's Name:** Les Aliments Tarasoy Ltée (Tarasoy Foods Ltd.).
**Manufacturer's Address:** 3455 Local D rue Isabelle, Brossard, QUE J4Y 2R2, Canada. Phone: 514-659-6586.
**Date of Introduction:** 1993.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Helen Wan, sales manager. 1995. May 26. This soy cheese product was launched in 1993. They make it in house and it melts.

2162. Levenstein, Harvey A. 1993. Paradox of plenty: A social history of eating in modern America. New York, NY: Oxford University Press. ix + 337 p., [8] p. of plates. Illust. (8 p. of plates). Index. 25 cm. [1473* endnotes]
• ***Summary:*** Contents: Prologue: Depression paradoxes. 1. Depression dieting and the vitamin gold rush (The New Nutrition, Victor Lindlahr, Gayelord Hauser, the willingness to eat for health more than for pleasure, Alfred W. McCann, Prof. Elmer McCollum and acidosis). 2. The great regression: The new woman goes home. 3. From Burgoo to Howard Johnson's: Eating out in Depression America. 4. One-third of a nation ill nourished? 5. Oh what a healthy war: Nutrition for national defense [World War II].

6. Food shortages for the people of plenty. 7. The golden age of food processing: Miracle Whip *über Alles*. 8. The best-fed people the world has ever seen? (Insta-Burger-King chain of early 1950s, Ray Kroc visits San Bernardino, the McDonald brothers, Clementine Paddleford). 9. Cracks in the façade: 1958-1965 (kitchen appliances do not reduce time women spend on food preparation, growing suspicion of the food industries, food additives, refined and processed foods, Gayelord Hauser). 10. The politics of hunger.

11. Nutritional terrorism (DDT and pesticides, Rachael Carson and *Silent Spring*, USDA, mercury in fish from the Great Lakes, Jerome Irving Rodale {ex-auditor for the IRS "was quite unlike most of the others in the huckster-filled health food business." Circulation of his *Organic Gardening and Farming* magazine soared from 60,000 in 1958 to 650,000 in 1970}. "Soon the doors were open to the usual horde of health food advocates and fad diet promoters impatiently waiting for the moments when they could again hold center stage." Gayelord Hauser, his women and his Five Wonder Foods, Adelle Davis, Organic foods, natural foods, health food stores, the government had sided with the medical establishment to keep the public from turning to vitamins–rather than to doctors–to solve health problems, the FDA and Food Faddism, vitamin advocates, Ralph Nader, agribusiness, cholesterol awareness, the AMA's council on foods, National Heart Association, Linus Pauling bankrolled by Hoffmann-La Riche, the largest wholesaler of vitamin C, in 1971 Michael Jacobson helped found the Center for Science in the Public Interest, middle class was rapidly losing faith in the food industry and government).

12. The politics of food (The New Left vs. Ralph Nader, radicals, *Ramparts* magazine, Francis Moore Lappe, vegetarianism, Berkeley radical Alice Waters opens Chez

Panisse, aphorism *Man ist was er isst* {Man is what he eats, by Ludwig Feuerbach, 1804-1872, German philosopher}, avoidance of meat and white foods, natural foods, Zen macrobiotic diet, Georges Ohsawa, Yin and Yang, Warren Belasco, brown rice, soy sauce, granola, Fred Rohe, Charles Reich, *Mother Earth News*, *Berkeley Barb*, "back to Nature," organic foods, the women's movement, LSD, Theodore Roszak, Frederick Stare sets up American Council for Health and Nutrition. Jean Mayer, reviling white sugar, John Yudkin, America's puritanical streak, Robert Choate destroys sugar and sugar-laden breakfast cereals, the public grows to despise sugar).

13. Natural foods and negative nutrition (You are what you eat {1969}, *Fortune magazine* predicts convenience will win out over natural foods. Delaney Amendment, cholesterol and heat disease, loss of faith in the core of America's postwar national credo: the ideal of the balanced meal and faith in the Basic Four, Senator McGovern and his committee's special report *Dietary Goals for the United States* {1977-1978}, which called for a complete about-face in government nutrition policy. "All previous government efforts had centered on getting people to eat more of what was thought to be good for them. *Dietary Goals* emphasized eating less of what was thought to be bad for them"–what Levenstein calls "Negative Nutrition." A great outcry came from the beef, dairy, and egg producers).

14. Darling, where did you put the cardamom? (The rise of gourmet, high ethnic, and upscale cuisines, French food, Julia Child, Craig Claiborne, snobbery, ethnic food boom, Oriental foods). 15. Fast food and quick bucks (Pizza, McDonald's, Kentucky Fried Chicken, franchises). 16. Paradoxes of plenty. Abbreviations used in frequently cited periodicals.

Born in 1938, Levenstein's first book was titled *Revolution at the Table: The Transformation of the American Diet.* This is a carefully researched, generally well written and very interesting cultural history of food and eating in the USA from 1930 to 1993–and of America's ongoing food wars. However by trying to take a fair and balanced centrist position, and by trying to prevent value judgments from creeping in (e.g., a healthy, balanced diet is better than an unhealthy one), Levenstein no doubt disappoints, and perhaps even infuriates, all sides. His sources on natural and organic foods and vegetarianism are scant and often very negative. Address: Prof. of History, McMaster Univ., Univ. of Hamilton, Ontario, Canada.

2163. Lock, Margaret M. 1993. Encounters with aging: Mythologies of menopause in Japan and North America. Berkeley, California: University of California Press. xliv + 439 p. Illust. Index. 24 cm. [552* ref]

• ***Summary:*** This is an extremely interesting, carefully researched, original book. However, soy is not mentioned. Contents: List of illustrations. Acknowledgments. Prologue: Scientific discourse and aging women. Part 1: Japan: Maturity and *kônenki.* 1. The turn of life–Unstable meanings. 2. Probabilities and *kônenki.* 3. Resignation, resistance, satisfaction–Narratives of maturity. 4. The pathology of modernity. 5. Faltering discipline and the ailing family. 6. Illusion of indolence–Ideology and partial truths. 7. Odd women out. 8. Controlled selves and tempered bodies. 9. Peering behind the platitudes–Rituals of resistance. 10. The doctoring of *kônenki.* 10. "Invisible messengers." 11. The making of menopause. 12. Against nature–Menopause as herald of decay. "An act of freedom." Epilogue: The politics of aging. Flashes of immortality. Notes. Bibliography.

Concerning hot flashes and night sweats (p. 29-30): Dr. Mori Ichirô, who works in Kyushu, has spent the greater part of his career doing research on *kônenki.* He thinks that neither its definition not its symptoms coincide with the current Western concept of menopause. Few Japanese accept the idea that *kônenki* is a state that demands medical care–such as hormone replacement therapy. Rather, it is a natural part of the aging process. Herbs can be effective against a wide range of *kônenki* symptoms (p. 296-97).

Concerning osteoporosis in postmenopausal Japanese women: Although the research is limited, there are strong indications that the incidence of osteoporosis among Japanese (and Chinese) women is less than half that of women living in North America–despite the fact that the bone density of East Asian women is less than that of Caucasian women (p. 295).

The life expectancy of Japanese women is the longest in the world. Japanese medicine is oriented toward prevention and primary care.

Some of the early articles advocating estrogen replacement therapy were written by Robert Wilson and his wife as early as 1963. Their research was funded by Wyeth Ayerst, the pharmaceutical company that makes Premarin and has the largest investment in production and sales of estrogen replacement therapy. Advertisements by Ayerst in medical journals of the time urged doctors to "Keep her on Premarin" and used the slogan "When a woman outlives her ovaries..." To keep women free of "senile decay," Wilson advocated not only that declining estrogen be replaced, but also that another crucial ovarian hormone, progesterone, whose principal function was to prepare the lining of the uterus for a fertilized egg, should also be replaced (p. 348-49). This view of menopause as a deficiency disease is increasingly criticized by modern women, who often also consider it demeaning of women and based on propaganda from pharmaceutical companies.

"The Women's Health Network suggests less expensive, safer, and 'more natural' forms of prevention against chronic disease, such as dietary changes, dispensing with cigarettes and excessive alcohol, and environmental improvements..." Dietary changes have significantly

reduced the rate of heart disease among men. “Moreover, a diet high in soybeans has recently been linked not only to a reduced incidence of hot flashes but also to lower incidence of breast cancer among premenopausal women *(Lancet,* 1991, p. 1197)” (p. 354-55).

Not all “women with bone fractures have osteoporosis and not all women with osteoporosis have fractures–facts that are often confused. Moreover, there is no simple relation between bone mineral density and incidence of osteoporosis” (p. 355). Address: Medical anthropologist, McGill Univ., Montreal, Canada.

2164. MacDonald, June Fessenden. ed. 1993. Agricultural biotechnology: A public conversation about risk. *NABC Report (National Agricultural Biotechnology Council, Ithaca, New York).* No. 5. [8] + 135 p. (Proceedings of the NABC 5th annual meeting, held at Purdue University, Lafayette, Indiana, in 1993).
• ***Summary:*** New members include: International Service for the Acquisition of Agri-Biotech Applications, North Carolina State Univ., Oregon State Univ., Univ. of Guelph (Ontario, Canada), Univ. of Saskatchewan (Canada). Address: Deputy Director, NABC, Ithaca, New York 14853-1801.

2165. Ontario Oil & Protein Seed Crop Committee. 1993. Ontario soybean variety trials (Leaflet). Ontario, Canada. 9 panels. 22 x 10 cm.
• ***Summary:*** Rates soybean varieties and gives detailed agronomic data for four different heat unit areas: 2500-2800 heat units, 2700-2900 heat units, 2900-3300 heat units, 3300-3500 heat units (the furthest south; average yield: 3.02 tonnes/hectare). Address: Ontario, Canada.

2166. Ontario Soybean Growers’ Marketing Board. 1993. Canadian soybeans. Ontario, Canada. 8 p. Undated. 28 cm. [Eng; jap]
• ***Summary:*** This brochure is composed of glossy color full-page pages interspersed with half-wide pages of text. The message is that Ontario soybeans are of world-class quality. Contents: Canada: With Canadian international class soybeans we grow quality. Canada: With Canadian graded soybeans, we not only promise quality, we guarantee it. The two center-fold pages and one additional half-wide page of text are in Japanese. Ontario: The Ontario farmer is at the heart of our success. Ontario: Our goal is to take quality one step further.

Full-page color photos show: A soybean plant with leaves and pods edged in gold from the setting sun. Young soybean plants just emerging and breaking ground. A field of soybeans stretching right up to the camera. A combine harvesting mature soybean plants in the evening. Soybeans being dumped into a hopper from the back of a truck. A Japanese man standing near the back of a truck with as sample of soybeans. Address: Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

2167. Wilson, Elaine. comp. 1993. Stanstead County vital statistics, Jan. 1876 to Dec. 1890. Stanstead Co., Quebec, Canada: Stanstead Historical Society. 28 cm.
Address: Stanstead Historical Society, 535 Dufferin St., Stanstead, PQ Canada J0B 3E0. Phone: (819) 876-7322.

2168. **Product Name:** Veg-A-King Soya Sauce.
**Manufacturer’s Name:** Harcan Kingsoya Co. Ltd. (Importer-Bottler). Made in China.
**Manufacturer’s Address:** 33 Casebridge Court, Units 5&6, Scarborough, ONT M1B 3J5, Canada. Phone: (416) 283-8328.
**Date of Introduction:** 1993?
**Ingredients:** Water, soya beans, wheat, salt, sugar, sodium benzoate.
**Wt/Vol., Packaging, Price:** 17 fl. oz bottle, and 2 litre or 4 litre plastic jugs.
**How Stored:** Shelf stable.
**New Product–Documentation:** Leaflet (in English and Chinese) describing product, with color photos of jugs and label, obtained in Ontario, Canada. 1994. Oct. “Harcan Kingsoya Co. Ltd. is a Chinese/Canadian joint venture company set up to bring you authentic soyfoods and exotic sauces. Our Chinese partner is a leading food manufacturer and exporter in Heilongjiang Province, China... Veg-A-King soy sauce is our flagship product. We use a traditional recipe which has a long history in China. Brewed naturally from premium soybeans, wheat and bran, it contains no artificial colours or added flavourings.”

Talk with Mark O’Neill of Chatham, Ontario, Canada. 1994. Dec. 5. Harcan does no fermentation in Canada. They import a condensed soy sauce (which is almost in solid form) from China, dilute it with water, bottle and sell it.

Talk with Duff MacKinnon of the Ontario Ministry of Agriculture and Food in Guelph. 1995. March 6. Harcan exports soy sauce to Europe.

2169. Northrup King Seed Co. 1993? Soybeans in Canada: Beyond 100 years (Color videotape). Chatham, Ontario, Canada: Northrup King. 38 min. Undated.
• ***Summary:*** Shows highlights of the 1993 centennial celebration of soybeans in Canada, with summaries of the main speakers and speeches. Contains extensive coverage of the Northrop King soybean breeding program at London, Ontario, Canada. Address: Chatham, Ontario, Canada.

2170. *SoyaScan Notes.*1994. Keywords used with more than 1,000 documents in the SoyaScan database, as of 1 January 1994 (Overview). Jan. 1. Compiled by William Shurtleff of Soyfoods Center.

• ***Summary:*** 1. USA 24,636. 2. Commercial soy products 6,565. 3. Japan 5,948. 4. Tofu 5,122. 5. Soymilk 3,884. 6. Illinois 3,642. 7. Soy sauce 3,387. 8. California 3,129. 9. Historical (documents published from 1900 to 1923) 3,013. 10. Soy flour 2,822. 11. History 2,730. 12. Soy oil 2,648. 13. Germany 2,447. 14. Miso 2,324. 15. Vegetarianism 2,319. 16. United Kingdom (England, Scotland, Wales, N. Ireland) 2,134. 17. China 1,554. 18. Soybean meal 2,019. 19. Cookery 2,017. 20. Soybean production: Cultural practices and agronomy 1,996. 21. France 1847. 22. Tempeh 1,844 23. Soybean production (General): 1,825. 24. U.S. Department of Agriculture 1,744. 25. New York 1,665. 24. Nutrition (General) 1,471. 25. Historical (documents published before 1900) 1,460. 26. India 1,397. 27. International trade in soybeans, soy oil, and/or soybean meal 1,225. 28. Canada 1,204. 29. Soy protein isolates 1,204. 30. Michigan 1,146. 31. Meatlike commercial products 1,145. 32. USDA state agricultural experiment stations in the USA 1,120. 33. Soybean production: Marketing 1,098. 34. Ohio 1,095. 35. Soybean production: Variety development 1,083. 36. Indonesia 1,063. 37. Tofu used as an ingredient in second generation commercial food products 1,062. 38. Bibliographies and literature reviews 1,049. 39. Massachusetts 1,029. 40. Macrobiotics 1,022. 41. Soy ice cream 1,014.

2171. Rojo, Oscar. 1994. Canadian firm supplies soybean process to Russia. *Toronto Star (Ontario, Canada).* Jan. 10. p. B3.
• ***Summary:*** Last month the first pilot SoyaCow system was installed in the Russian city of Krasnodar. Eventually, a technology transfer agreement will allow SoyaCow systems to be produced under license in a former Russian military plant. “Consulting work performed by Dr. F. Warren of the Canadian Executive Service Organization is credited with helping ProSoya break into the Russian market.”

2172. Rusnell, Charles. 1994. Local firm milks Russian deal: Company to ship 100 machines to produce soymilk. *Ottawa Citizen (Ontario, Canada).* Jan. 13. p. D6.
• ***Summary:*** ProSoya Inc., and Ottawa (Canada) firm has signed a major deal to provide a Russian official, Alexander Podobedov of ASSOY (the Russian Soybean Processing Association), with 100 of its SoyaCow soymilk machines. The six-year deal will earn the young company about $1 million during the first year alone. A photo Frank Daller of SoyaCow and Alexander Podobedov standing by a SoyaCow system.

2173. Agriculture Canada, Oilseeds Division, International Markets Bureau, Markets and Industry Services Branch. 1994. Oilseed sector profile. Ottawa, Ontario, Canada. [iv] + 23 + 1 + 12 p. Jan. 28 cm. Spiral bound. [3 ref]

• ***Summary:*** Contents: Foreword. 1. Introduction. 2. The seed production subsector: Canola, soybeans, flaxseed, sunflower, mustard, safflower, composition.

3. The processing subsector: Background, crushing plants, industry statistics, methods of processing, oilseed crushings, vegetable oils, vegetable oilmeals, economic value of the industry. 4. The marketing subsector: Oilseeds marketing, hedging, processed oilseed products marketing.

5. Organizations: Canola, soybeans, flaxseed, crushers. 6. The environment: Domestic, international.

Appendix A: Role of the federal government in the Canadian oilseeds industry: Research, regulation, marketing. Appendix B. Oilseed industry directory: Industry association, oilseed processing companies, oilseed sector trading companies, research / education institutions, government, others.

Soybeans (p. 3): “Soybeans were introduced into Canada in 1893; however they did not become a commercial oilseed crop until the late 1920’s. In that year [sic, about March 1930], the first soybean crushing plant [Milton Oil Refineries, Ltd.] was built in Milton, Ontario. The introduction of modern crushing mills occurred in the late 1930s. Increased demand for vegetable oil and protein meal during the early 1940’s firmly established the crop and by 1950, soybeans had become a major cash crop in Ontario. Strong promotional efforts by the crushing industry assisted in continued expansion of the crop. During the 1980s, soybeans were introduced into Québec, the Maritimes and Manitoba as a source of livestock feed... In Québec, whole soybeans have become a viable alternative feed source. In other regions, whole soybeans are only a minor ingredient for livestock.”

The soybean growers, like their canola counterparts, have shown a high degree of cohesion and organizational ability. In 1949, the Ontario Soybean Growers’ Marketing Board was founded. The Board represents 25,000 producers and negotiates the pricing arrangements for Ontario soybeans. Its functions are discussed in more detail further in this report. The handling, crushing, and exporting of soybeans and soybean products is handled by private companies.

“Canadian soybean production has increased sharply from the late 1970’s when up to 60 percent of Canadian soybean requirements had to be imported. In 1987, domestic production reached a level capable of supplying most internal demands for crushing (Table 3). Although some soybeans are still being imported from the U.S., Canada exports a larger volume of high quality white hilum soybeans for food utilization in Asian and European markets.

Domestic crush of these larger crops has made Canada self-sufficient in soyoil production; however, soymeal is still in a deficit position. About 600,000 tonnes representing

close to 50 percent of domestic soymeal utilization requirements needs to be imported yearly.

"Up to 1991, the soybean crushing industry was operating below capacity." In that year, Victory Soya Mills in Toronto was closed. "The result is that the crushing capacity now meets the production of soybeans for crushing. Therefore, without an increase in crushing capacity, Canada will remain a net importer of oilmeals. Nevertheless, increasing the crush is economically questionable until a viable market outlet is found to absorb the additional soyoil produced. The 1992 elimination of the U.S. crude soyoil tariff (18%) could ease the situation. The two companies crushing soybeans in Canada are corporately linked to large multinational corporations, with major U.S. operations. Therefore, without tariff, the unrestricted movement of soyoil between the two countries is a possibility."

"Economic value of the industry (p. 12): The oilseed crushing industry makes a large and positive contribution to the Canadian economy. It is a processing industry and as such it provides enhanced strength to the economy through value-added contributions and the financial multiplier effect. In 1992 (table 16) the direct economic benefits were $1,810 million, and the contribution to the Canadian balance of payments was $599 million in total import replacement and $322 million in export earnings for a total contribution of $921 million.

Tables show: (3) Canadian supply and disposition of soybeans, soyoil and soymeal, 1988-1993. (5) Oilseed crushing facilities in Canada. Owners and their soybean crushing plants are: ADM Agri-Industries Ltd. (Windsor, Ontario): 1,250 tonnes capacity per 24 hours. CanAmera Foods (Hamilton, Ontario): 1270 tonnes capacity per 24 hours.

(7) Oilseed crushings in Canada: The soybean crush was #2 largest in Canada after canola and ahead of sunflower seed. The soybean crush was 908,200 tonnes in 1988, then 916,000 tonnes in 1989, then 1,083,500 tonnes in 1990, then 943,600 tonnes in 1991, and 995,200 tonnes in 1992.

(8) Vegetable oil production in Canada. Soybean oil is #2, far behind canola oil and far ahead of sunflower oil. During these 5 years, soybean oil production ranged from a low of 159,000 tonnes in 1988 to a high of 194,800 tonnes in 1990.

(9) Vegetable oil trade. During these 5 years, soybean oil imports to Canada were very small, ranging from a low of 4,000 tonnes in 1989 to a high of 16,000 tonnes in 1990. Soybean oil exports from Canada were even smaller, ranging from a low of 1,000 tonnes in 1989 to a high of 5,300 tonnes in 1991. Both soybean crushers also have their own soy oil refineries. The capacity of the ADM Agri-Industries Ltd. refinery (Windsor, Ontario) is 159,000 tonnes per year, whereas that of CanAmera Foods (Toronto) is 147,000 tonnes per year.

(13) Vegetable oilmeal production: Soybean meal is #2, behind canola meal but far ahead of sunflower meal. During these 5 years, soybean meal production ranged from a low of 698,300 tonnes in 1988 to a high of 835,800 tonnes in 1990.

(14) Vegetable oilmeal trade. During these 5 years, soybean oil imports to Canada were large, and vastly larger than any other oilmeal, ranging from a low of 565,400 tonnes in 1990 to a high of 692,100 tonnes in 1988. Soybean meal exports from Canada were very small, ranging from a low of 200 tonnes in 1989 to a high of 33,100 tonnes in 1992. By contrast, large amounts of canola meal (about half of the total amount produced each year) were exported.

(18) Soymeal imports by province. The top 3 in 1988 were: Ontario 326,026 tonnes. Manitoba 169,687 tonnes.

(19) Soybean exports by major markets: The top 8 in 1992 were: USA 69,135 tonnes. Portugal 62,515 tonnes. Netherlands 27,349 tonnes. Former USSR 20,752 tonnes. Hong Kong 19,376 tonnes. Singapore 17,268 tonnes. Japan 11,306 tonnes. Malaysia 10,687 tonnes. Quebec 137,365 tonnes. Total 1992 245,668 tonnes.

(24) EC-12 production of major oilseeds, 1989-193. In 1992-93 the leading oilseeds produced in the European Community were: Rapeseed 6,217,000 tonnes. Sunflowerseed 3,940,000 tonnes. Soybeans 1,294,000 tonnes. Cottonseed 606 tonnes. Linseed 316 tonnes. Address: 930 Carling Ave., Ottawa, ONT K1A 0C5, Canada. Phone: (613) 995-8324.

2174. Agriculture Canada, Oilseeds Division, International Markets Bureau, Markets and Industry Services Branch. 1994. Oilseed sector profile: Organizations (Document part). Ottawa, Ontario, Canada. [iv] + 23 + 1 + 12 p. See p. 18-19. Jan. [3 ref]

• ***Summary:*** "Soybeans: The producer marketing organization for soybeans is the Ontario Soybean rowers' Marketing Board (OSGMB). Its objective is 'to enhance the marketing of Ontario soybeans.' The Board's powers include licensing [soybean] producers, dealers and grain merchandisers and brokers; establishing license fees and negotiating with dealers and handlers charges for handling, cleaning and drying. The OSGMB as the power to purchase and sell soybeans but has not yet exercised this right. Minimum prices are not negotiable with buyers. Processors, crushers or brokers have agreed instead to pay to the producer the U.S. soybean price adjusting for quality, transport, handling, insurance and monetary exchange. The OSGMB negotiates the factors involved in these activities. All trading for the domestic, export and seed markets is done via private companies at current prices based on the

price establishment methodology agreed to with the OSGMB.

"The OSGMB provides several important services. On behalf of the producer, the Board gathers and disseminates market and price information. It administers the Advance Payment Program of Agriculture and Agri-Food Canada for producers meeting the Program's requirements. The OSGMB maintains marketing records from which it compiles an average price to the producers by crop year. It gathers the information from which federal and provincial stabilization payments are determined. The OSGMB promotes the use of soybeans and soy products domestically and in key markets abroad. Through the Board, producer funds are channeled into research for improved soybean varieties or for new uses, such as roasted beans for animal rations. Finally, the OSGMB is an active lobbyist of the federal and provincial government on a variety of issues of concern to the industry."

"Crushers: The Canadian Oilseed Processors Association is a non-profit industry association which represents all of the oilseed processing [crushing] companies in Canada. The association was formed in 1992 by the amalgamation of the Canola Crushers of Western Canada [founded in about 1979] and the Ontario Oilseed Industry Association [founded in about 1989]. The Association's members include: ADM Agri-Industries Ltd., CanAmera Foods, Canbra Foods Ltd. and Northern Lite Canola Ltd."

A list of eight of the Association's main objectives is given. Address: 930 Carling Ave., Ottawa, ONT K1A 0C5, Canada. Phone: (613) 995-8324.

2175. Gervais, Marc; Theriault, Sylvana; Bernard, Eric. 1994. Oilseed sector profile. Ottawa, Ontario, Canada. [iv] + 23 + 1 + 12 p. Jan. 28 cm. Spiral bound.

• ***Summary:*** Contents (each accompanied by tables and charts; each section covers the years 1991-1994): Imports of soya beans for sowing (almost all come from the USA, followed by Chile and Japan). Imports of soya beans for oil extraction (almost all come from the USA). Imports of soya beans, nes [meaning unclear] (almost all come from USA, followed by Taiwan, China, and Japan).

Imports of soya-bean oil crude, whether or not degummed (almost all comes from the USA, followed by France). Imports of soya-bean oil and its fractions, refined but not chemically modified (almost all comes from the USA, followed by Singapore). Imports of veg fats & oils & fractions hydrogenated, inter or re-esterified, refined or not (almost all comes from the USA followed by UK and Netherlands). Imports of animal or veg fats & oils...

Imports of soya bean flour and meals. Imports of soya sauce (main suppliers are: USA, China, Japan, Hong Kong, Taiwan, Philippines, South Korea). Imports of protein concentrates and textured protein substances (almost all comes from USA). Imports of Soya-bean oil-cake and other solid residues, whether or not ground or pellet (almost all comes from USA). Imports of bran, sharps and other residues of leguminous plants, pelleted or not (almost all comes from USA).

Exports of soya beans for sowing (most goes to USA, followed by France, Germany and Austria). Exports of soya beans, for oil extraction (most goes to Netherlands, followed by France, Portugal and Spain). Exports of soya beans, nes (most goes to USA, followed by Hong Kong and Singapore). Exports of soya bean flour and meals (almost all goes to USA). Exports of soya-bean oil crude, whether or not degummed (almost all goes to the USA). Exports of soya-bean oil and its fractions, refined but not chemically modified (almost all goes to Pakistan, followed by USA). Exports of veg fats & oils & fractions hydrogenated, inter or re-esterified, refined or not (almost all goes to the USA). Imports of animal or veg fats & oils... (almost all goes to USA).

Exports of soya sauce (main buyers are UK, Japan, United States, Finland, Cuba).

Exports of protein concentrates and textured protein substances (almost all goes to USA). Exports of Soya-bean oil-cake and other solid residues, whether or not ground or pellet (almost all goes to USA). Exports of bran, sharps and other residues of leguminous plants, pelleted or not (almost all goes to USA). Address: Trade Evaluation and Analysis Division, International Markets Bureau, Markets and Industry Services Branch, Agriculture Canada, Ottawa, Ontario, Canada.

2176. Shurtleff, William; Aoyagi, Akiko. comps. 1994. Soyfoods industry and market–Bibliography and sourcebook, 1985 to 1993. Lafayette, California: Soyfoods Center. 361 p. Subject/geographical index. Author/company index. Language index. Printed 11 Jan. 1994. Published Jan. 1995. 28 cm. [985 ref]

• ***Summary:*** This is the second of the two most comprehensive books ever published on the soyfoods industry and market worldwide.

In May 1982 the first study of the burgeoning soyfoods industry in the Western world was compiled by Shurtleff and Aoyagi, and published by Soyfoods Center. In April 1985 the fifth edition of that book, titled *Soyfoods Industry and Market: Directory and Databook* (220 pages), was published. It contained statistics through 1984, the market size and growth rate for each soyfood type, rankings of leading soyfoods manufacturers of each soyfood type and the amount each produced, analyses, trends, and projections. This book is published to update the 1985 market study.

In the decade since 1984 the soyfoods market has continued to grow at a very healthy rate, with some soyfood types (such as soymilk) growing at a truly astonishing

sustained rate–in both the USA and western Europe–as the statistics in this book show so vividly. In 1975 only 75 new commercial soyfood products were introduced in the USA, yet that number skyrocketed to 217 in 1979, reaching an amazing 422 new products in 1987.

During the decade from 1984 to 1994, Soyfoods Center has invested most of its time and resources in the production of SoyaScan, the world's largest computerized database on soyfoods, which contains more than 44,500 records as of Jan. 1994. This database also includes a wealth of carefully researched statistics and analyses of the soyfoods market; those from the start of 1985 to the end of 1993 are contained in this book. Its scope includes all known information on this subject, worldwide. Its focus, however, is statistics, analyses, and trends concerning the soyfoods industry and market in the United States and Europe.

In May 1990 Soyfoods Center conducted an in-depth study of the tofu market in Europe (137 pages), and in July 1990 of the soymilk market in Europe (261 pages). All original interviews and published records from both of these market studies, plus a summary of each study, are included in the present book.

The SoyaScan database is composed of individual records. One record might be an original interview with the head of the largest soymilk company in Europe, on the size and growth of the soymilk market in Europe, and new trends in that market, conducted by William Shurtleff of Soyfoods Center. Another might be a published article or an unpublished document concerning the growth of the market for soy yogurts or soy sauce in America.

This book documents the growth of each product category in every country worldwide. The book contains three extensive and easy-to-use indexes: A subject/geographical index, an author/company index, and a language index. These allow you to find the exact information you need on the soyfoods industry and market quickly and easily. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Phone: 510-283-2991.

2177. Lewis, David. 1994. Bean curd banner flies high over Tofutown. *Rocky Mountain News (Denver, Colorado).* Feb. 1. p. 33A, 38A. Business section.
• ***Summary:*** White Wave produces 2½ tons of tofu every working hour of every day. That's 50,000 pounds of tofu a day, 250,000 pounds a week, and 13 million pounds a year. White Wave sells its tofu and tofu spin-offs–Meatless Tofu Steaks, Dairyless Soy Strawberry Yogurt–in 50 states, Puerto Rico, Mexico, and Canada. Demos vows this is only the beginning. "I'm in this because this is a 100-year project. And I'm not going to be around to see the end of it." A large photo shows Ken Vickerstaff, White Wave's sales and marketing president, and Steve Demos, company president. *Boulder Daily Camera* food writer John Lehndorff coined the term Tofutown USA to describe Boulder. Demos thought up the White Wave logo while meditating in Santa Barbara in 1976. "I learned how to make tofu at a 76-day (meditation) intensive. Demos says that 15% of the people in Boulder, Colorado, consume tofu compared with a national average of 2-3%.

White Wave sales have risen 20% to 35% a year for the last 5 years, with 1993 revenues being about $5 million. White Wave plans to create brand identity through its new merchandising format–Vegetarian Cuisine Centers. Piloted in three Whole Foods Markets in California, they increased White Wave sales 730% during their first 3 months in existence. Demos' present goal is "brand building." He considers that to be the strength and fortune of the company. "It's the concept of right livelihood. Can you come up with a career choice you and everyone who touches you benefits from? In the end you enjoy it and the world is better off with it than without it. Wealth without guilt. That's an achievable goal."

Note: This is the earliest document seen (March 2005) in which Steve Demos uses the term "right livelihood."

Haru Yamamoto's Denver To-fu Company also makes tofu–a ton of it per day. Address: Rocky Mountain news staff writer.

2178. *Agri-Book Magazine (Exeter, ONT, Canada).*1994. Beans in Canada. 20(5):1-40. Feb.
• ***Summary:*** This entire special issue is about soybeans in Canada, with emphasis on soybean production. The magazine is printed with soy ink. Articles include: Inoculant report. Northrop King on the move–for you. Soybeans, weeds, and management. Energy and efficiency (No till requires less diesel fuel [but much more herbicides]). Soybean board report: New [industrial] uses for soybeans, soybeans in space, the oils and fats balance *(trans* fatty acids). Long on life, short on emissions (Soydiesel), Quality control (ISO 9002–an international set of standards covering all industries, dedicated to total quality management). Plant breeding: Looking back and ahead. First the market (Pioneer Hi-Bred's Specialty Plant Products Division). Bins for beans (on-farm storage). Far East Market can double (selling soybeans for food uses in East Asia). Trials a think of the past (no-till). There's profit in the coming soybean shortage. Don't let cyst nematodes manage you.

2179. *Agri-Book Magazine (Exeter, ONT, Canada).*1994. Far East market can double. 20(5):29. Feb.
• ***Summary:*** Canada is selling more and more soybeans for food uses to East Asia. Thailand is the only country in the region that is self-sufficient in soybean production. Japan (population 123 million) imports more than 1 million tonnes per year, Taiwan imports 250,000 tonnes, Indonesia 150,000 tonnes, Korea 120,000 tonnes, and Malaysia 100,000

tonnes. Singapore and Hong Kong import all the soybeans they use.

In 1993 Ontario produced a record 1.7 million tonnes. Only 500,000 tonnes of this (29.4%) was exported, and only a fraction of that was suitable for making soyfoods such as tofu, natto, soymilk, Taiwanese fermented tofu *(foo yee)*, etc. A large color photo shows ladies in Taiwan packing fermented tofu in jars.

Ontario has captured 56% of the Hong Kong market, and about 14% of the Malaysian market. But the Asia market is becoming more competitive because exporters from the USA are beginning to offer soybeans in bags as well as bulk shipments. Michael Loh, the OSGMB coordinator for export development, thinks Canada can achieve its goal of doubling soybean exports by the year 2000.

2180. Badani, Bernard. 1994. Edible soybean mission report, Indonesia, Taiwan, Korea, February 1994. Ottawa, Ontario, Canada: Agriculture and Agri-Food Canada. 23 p. 28 cm. Spiral bound.

• ***Summary:*** Contents: Foreword: Mission objective, countries visited, main goals, conclusion. Acknowledgments. Names of the 8 mission members. Visit to Indonesia (Jakarta): Background, visits (Nestle soymilk plant in Surabaya, BULOG), conclusions, market potential (short, medium, and long term). Visit to Taiwan (Taipei, Taichung, Tainan, Kaohsiung): Background (the pro-American soybean lobby), visits (Taiwan Tofu Manufacturers Assoc., Tet Union Corp., Great Wall Enterprises, Herng Yih), conclusions, market potential (short and medium term). Visit to Korea (Seoul): Background, visits (Hyosung Corp., AFMC, Korean and Seoul Tofu Manufacturing Co-operatives, conclusions, market potential (short and medium term). List of contacts by country (photocopies of business cards). Note: Mr. Badanai works for this federal organization in Ottawa.

This mission, whose coordinator was Michael Loh, took place between Feb. 25 and March 10, 1994; it was organized by OSGMB with assistance from the Canadian Embassies in Jakarta and Seoul, and the Canadian Trade Office in Taipei. The overall objective of the mission was to open these 3 markets to the sale of Special Quality White Hilum (SQWH) soybeans from Canada for use by their soy food industries.

Indonesia imports about 700,000 tonnes of soybeans each year, mostly grade #1 from the USA, to supplement its local production of about 1.3 million tonnes. About 250,000 tonnes of the imports are used to make soyfoods such as tempeh (which accounts for about 80% of the total), tofu, taucho (Indonesian miso), and soybean milk. The majority of their domestically grown soybeans are also used to make soyfoods. All Indonesian soybean imports are handled by BULOG, a government agency which determines yearly requirements and allocates the resulting imports to various companies under a complex price structure formula apparently designed to maintain the competitiveness and full utilization of the domestic crop whose internal prices are very high by international standards. Sarpindo is the largest Indonesian soybean crusher. Nestle operates a soymilk plant in Surabaya that makes 12,000 tonnes/year and is completing a second one of 20,000 tonnes capacity in Jakarta. Much of Nestle's production, especially for the new Jakarta plant, is oriented toward the export market, with the Philippines as their top priority.

Taiwan grows only 12,000 tonnes of soybeans domestically, but they import 2,400,000 tonnes per year. Their main suppliers are the USA (1,938,000 tonnes, 80.8% of the total), China, 297,000 tonnes), and Argentina (6,000 tonnes). Imports are handled mostly by a small number of major crushers, which then select a portion of the #2 soybeans imported, bag them, and sell them to Taiwanese soyfood manufacturers. About 8% of the total imports (200,000 tonnes) are handled in this way. Tofu is by far the most important soyfood in Taiwan, with consumption of 49.79 kg/capita/year. Most tofu is made by very small companies. The main problem facing Canadian exporters is the almost total control that the pro-American soybean lobby has shown so far in Taiwan. This lobby includes the main local crushers/importers of U.S. soybeans (which have a strong interest in maintaining the present import and distribution systems that make local tofu manufacturers dependant on them), and the American Soybean Association (ASA) office (with a staff of 15) in Taipei. Tet (Ttet) Union Corp. in Tainan is the largest crusher in Taiwan. Fwusow (Fwu Sow) is a large edible oil company. Taiwan's largest tofu manufacturer is Herng Yih Food Industrial Co. of Kaohsiung. The 13 year old company has two plants, 14 minutes drive apart.

Korea imports between 1 and 1.1 million tonnes of soybeans a year to supplement domestic production of about 200,000 tonnes. Approximately 200,000 tonnes of the total imports and 20,000 tonnes of domestically grown soybeans are used to make soyfoods, mostly tofu. All soybeans destined for this purpose are purchased by AFMC, the Agricultural and Fisheries Marketing Corporation, a state-owned corporation and government monopoly under the Ministry of Agriculture. that resells soybeans to food processors according to their needs, charging a very high markup over the import purchase price. This markup, in turn, allows AFMC to subsidize purchases of domestic soybeans which it buys at prices close to 5 times the international price but which it resells to tofu manufacturers at the same price as the imported soybeans. It is expected that AFMC will loose its importing monopoly on food grade soybeans by 1997 due to the GATT agreement. An immediate market potential for Canadian soybeans seems to exist for sprouting soybeans, of which Korea purchases

about 6,000 tonnes a year. Address: Grains and Oilseeds Div., International Markets Bureau, Agriculture and Agri-Food Canada, Ottawa.

2181. Pioneer Hi-Bred International, Inc. 1994. The soy innovator: The latest in soybean technology from the leader in soybeans (Ad). *Soybean Digest.* Mid-Feb. p. 17-18.
• ***Summary:*** A 1993 market survey of more than 6,100 soybean growers, selected at random, shows that Pioneer is the leading brand of U.S. soybeans. They are planted on 19% of all U.S. and Canadian bagged soybean seed acres. This is nearly twice the share of the next closest soybean, and the fourth year in a row that Pioneer soybeans have been the leading brand.

When Pioneer began its soybean breeding program about 20 years ago, about 75% of all U.S. soybean growers planted publicly developed varieties. By 1983 the market share of publicly developed varieties had dropped to 32%, and by 1993 to only 18.7%. Thus 81.3% of soybean growers are now using privately developed, bagged soybeans. “Many public universities have moved away from variety development toward basic research and the creation of new genetic sources.” “Pioneer invests more than $7 million annually in soybean variety research, breeding, and biotechnology.” Address: Des Moines, Iowa.

2182. Sinclair, Jim. 1994. The new National Soybean Research Laboratory (Interview). *SoyaScan Notes.* March 31. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Interest in such a laboratory began about ten years ago when a group of soybean growers from the Midwest went to China to start negotiating to get germplasm for the National Germplasm Collection at Illinois. Several of them visited the International Rice Research Institute (IRRI) in the Philippines and got very enthusiastic about IRRI’s work. Upon returning to the USA, they suggested that there should be an international soybean research institute in the United States. This has become a grass-roots project, with farmers taking the initiative.

To make a long story short, the USDA gave them $5 million to develop a center if they could get matching funds. The University of Illinois had an old 3-story Veterinary Medicine building (across the street and just south of the greenhouse complex) that had been abandoned for 3 years–since the university had built a new veterinary medicine campus. Built in 1955, it was very well built and unusually attractive–with oak frames, solid-core doors, black stone window sills, brass railings, etc.; the estimated value was $5.25 million. The building contains beautiful seminar rooms, a nice auditorium, a conference room–but it can’t be used for university classes. It is separate from the state but part of the university. So the University of Illinois College of Agriculture agreed to contribute the building which could count as the matching funds. Over the past 3 years, the building has been remodeled in two phases. The new facility was dedicated in Sept. 1993, even though the renovation was not completely finished. Presently the building is named the “Environmental and Agricultural Sciences Building.” When all is done, NSRL will occupy the entire building–3 full floors. On the first floor is the “Administrative Corner” where the director’s office, the INTSOY administrative office, and the USDA administrative office are now located. Jim hopes to integrate all of these programs into NSRL. The scientists who occupy the building are USDA soybean scientists, Illinois state scientists. For INTSOY, there will be two offices for research personnel and a lab for diagnostics. INTSOY will keep its research space in the newly remodeled food processing building.

Jim is interim director on a half-time basis. He is slowly trying to integrate the program though he does not have a big budget to run the lab. He has limited funds to operate his office and his salary comes through the department of plant pathology. One of his main jobs is to find funding, and one promising source is the soybean checkoff funds. Yesterday he met Larry Johnson, head of the utilization lab at Iowa State University. Larry has a nice new facility and equipment, but his problem (like Jim’s) is finding money to run it. He hopes to work closely with Larry and to seek regional funding for interdisciplinary research programs. He will be approaching the United Soybean Board (USB) and ASA with proposals to help fund programs. A great deal of work needs to be done.

NSRL is trying not to compete with any other organizations. It is not taking over any of the work done by the former Northern Regional Research Lab (now named NCAUR) in Peoria, Illinois, and in fact hopes to collaborate with NRRL scientists. In the past, quite a bit of soybean research has been duplicated by the various agricultural experiment stations. But now that the federal government is cutting back on funding for agriculture, there are new opportunities for more cost-effective regional research. Under NAFTA (the North American Free Trade Agreement between the USA, Canada, and Mexico), all of the federal funding for oilseeds in each country will be phased out over a 3-year period to create an even playing field of competition among the 3 nations. Likewise, Canada will have to stop its large subsidies for canola. In the past $70 to $74 million has been used to support U.S. soybean oil; this support will be discontinued. In the fiscal 1995 U.S. Farm Bill, soybean growers would like to shift that money to establishing four regional soybean production research labs. Their mandate would be both production and utilization. It is crucial that production and utilization work hand in hand–especially as the “value added” concept becomes more important. The North Central Soybean Research Program would be located at Jim’s lab in Illinois. Another would be in Georgia and the remaining two would be decided

politically. These new organizations would not take soybean research away from existing agricultural experiment stations.

Jim hopes that INTSOY (which move part of its operations into the NSRL building in Dec. 1993) will become the international arm of the NSRL. There is newly-remodeled space on the second floor where NSRL Jim hopes to develop a database for all information related to soybeans. Jim has been trying to find an organization that would help fund the startup costs for such a database. The most promising lead looks like USDA's CSRS (Cooperative State Research Service) which produces the CRIS (Current Research Information System) database. The soybean entomology database developed by SIRIC and the Kogans and used to publish the award-winning two-volume book titled *World Bibliography of Soybean Entomology* is now at NSRL. The documents are in all new file cabinets and there is an adjacent room for a computer programmer and some assistants if necessary. One of his projects is to get this up and operating. Carol Boast of the University of Illinois agricultural library (who has done a bibliography on sweet potatoes and the early USDA agricultural experiment station literature) is helping him look for funds.

NSRL has a periodical titled NSRL Bulletin. The first issue was published in Jan. 1994.

One important local organization is the University of Illinois Foundation. They might purchases a special collection as part of the University of Illinois library system. Then the CSRS people might provide some funds for the ongoing operation of a database–which is expensive. Address: Acting Director, National Soybean Research Lab. (NSRL), 170 NSRL, 1101 W. Peabody Dr., Urbana, Illinois 61801. Phone: 217-244-1706.

2183. **Product Name:** Gelato Fresco (Soymilk Ice Cream) [Chocolate, Hazelnut, Vanilla].
**Manufacturer's Name:** Gelato Fresco.
**Manufacturer's Address:** 60 Tycos Drive, Toronto, ONT M6B 1V9, Canada. Phone: 416-785-5415.
**Date of Introduction:** 1994. March.
**How Stored:** Frozen.
**New Product–Documentation:** Talk with Frank Daller of ProSoya Inc., Canada. 1995. June 6. This product was launched in Canada in early 1994, and in the USA at the Natural Products Expo at Anaheim in March 1995. In the USA it is named "Ge*la*to" Because the trademark "Gelato Fresco" is already taken. The product is made using ProSoya soymilk plus very high quality all-natural ingredients in small batch freezers.

Talk with Hart Melvin, product manager for Gelato Fresco. 1995. June 7. Their non-dairy Gelato Fresco was introduced in Canada about 2 years ago. Their first customer was the Ontario Federation of Food Co-ops. The idea started when Hart was approached by some people in Indonesia, who were interested in his Sorbase non-dairy frozen dessert. They wanted to market this to Chinese, who are highly lactose intolerant. His Sorbase products have a consistency like that of ice cream. They are made from fruit, sugar, and vegetable stabilizer; no water or protein is added. Then he began to think that, as great as the fruits are, people still like chocolate, vanilla, coffee, and other popular ice cream flavors. So he tried using Vitasoy, Edensoy, and Westsoy as the base for a non-dairy ice cream. Then he met ProSoya, who offered good-tasting bulk soymilk made locally at a good price. In Canada he has worked with the Ontario Federation of Food Co-ops and Maximum Nutrition (two health foods distributors) in testing a honey-sweetened product for the health food community. He started with the health food market, but now he has developed a high overrun chocolate soymilk ice cream product that is sweetened with white sugar for mainstream Canadian. He has given it the top chefs in town, to food critics, and to product developers from major chains; they can't tell that its not a dairy ice cream. When you make a product with honey for the health food market, the price goes up and the acceptability to most consumers drops. So he plans to focus on the Canadian mainstream consumer, by developing a private-label product for a Canadian supermarket chain. Their soy ice cream product was launched in America at the Natural Products Expo at Anaheim in March, 1995. It is distributed in the USA by Fearn Natural Foods. Div. of Modern Products, Inc. in Milwaukee, Wisconsin. They have distribution channels in America. Concerning future plans: His company makes a Tartufo, which is a ball of ice cream with another flavor inside. Their best-selling product in that category is a raspberry-chocolate Tartufo. They plan to make a non-dairy product in the same flavors. It will be pareve and kosher, and the calories will be a little lower. A chocolate ice cream usually has a bit more calories because the chocolate has a little fat in it and the formula usually uses a little more sugar to balance the bitterness of cocoa.

2184. Osho, Sidi M. 1994. Methods for the dissemination of food processing technologies: The soybean example in Nigeria. In: M. Bokanga, A.J.A. Essers, N. Poulter, H. Rosling, O. Tewe, eds. 1994. Proceedings of the International Workshop on Cassava Safety. Wageningen, Netherlands: International Society for Horticultural Science. 416 p. See p. 385-91. Held 1-4 March 1994 at Ibadan, Nigeria. [8 ref]
• ***Summary:*** Contents: Abstract. Introduction. Soybean utilization model: Nutritional value of soybean, documentation of the status of soybean utilization in Nigeria, dissemination of soybean processing technologies. Conclusion.

Protein deficiency is still a major problem in Nigeria and in Africa, especially among low-income groups, Cassava, which is the staple food for millions of people in

Africa, could be fortified with soybean to relieve malnutrition.

Since 1987 IITA (International Institute of Tropical Agriculture) and four Nigerian institutions have been working on a soybean utilization project with funding from International Development Research Centre (IDRC), Canada. The four Nigerian institutions are: Institute of Agricultural Research & Training (IAR&T), the University of Nigeria, Nsukka (UNN), the National Agricultural Extension Research and Liaison Services (NAERLS), and the National Cereals Research Institute, Badeggi (NCRI).

In. Jan. 1987 only 2 companies were processing soybeans in Nigeria; this number had increased to 19 by Jan. 1990 and to 33 by Jan. 1993.

Also: *Acta Horticulturae* No. 375, International Society of Horticultural Science, Wageningen, the Netherlands. Address: Grain Legumes Improvement Program, IITA, PMB 55320, Ibadan, Nigeria.

2185. *SoyaCow Newsletter (Ottawa, Canada).*1994. Top Russian government kitchens make soyfoods. 3(1):1. Jan/March.

• ***Summary:*** "In March, six SoyaCows were delivered to Moscow, where most were promptly installed in the kitchens of key government buildings. The sites included: The Russian Council of Ministers (White House), Ministry of Finance, Ministry of Economics, Ministry of Agriculture, and the State Bank.

"At the initiative of Alexander Podobedov, director of the Russian Soybean Association, 'ASSOY,' these pilot operations are building a broad political awareness and will launch the first soyfoods program throughout Russia. In addition to flavoured beverages, the SC-20 systems are providing for soy yogurt, tofu, and baked goods using the 'okara' fibre. Hundreds of top government people have sampled the various products, made with homegrown soybeans, with generally positive results."

2186. *SoyaCow Newsletter (Ottawa, Canada).*1994. Child Haven establishes SoyaCow Centre in India. 3(1):2. Jan/March.

• ***Summary:*** "The SoyaCow Centre has now been established in Ghaziabad, about 30 minutes drive from Delhi, to serve the growing population of SoyaCows in India. The Centre's main objective is to help women in self-employment by producing and selling soymilk and its products at affordable prices.

The Centre promotes a table-top SoyaCow SC-20 machine that makes high-quality soymilk on demand at the cottage industry level, producing 13-14 liters every 30 minutes (using 1.75 kg of soybeans costing about 10 rupees per kg) at a cost of Rs. 2-3 per litre. The SoyaCows, which will be made in India under a technology transfer agreement with Child Haven, include accessories for making tofu from the soymilk.

2187. Vitasoy International Holdings Ltd. 1994. New issue of 127,200,000 shares of $0.25 each at $2.28 per share: Prospectus. Hong Kong: Vitasoy International Holdings Ltd. 94 + 94 p. March 15. 28 cm. [Eng; Chi]

• ***Summary:*** This prospectus announces the first public sale of Vitasoy stock. Half the prospectus is written in English and the other half in Chinese. The sponsor and manager of this initial public stock offering is Wardley Corporate Finance Limited. Underwriters: Wardley Corporate Finance Limited, and Schroders Asia Ltd. The symbol "$" refers to Hong Kong dollars unless otherwise indicated; 7.8 Hong Kong dollars = 1 U.S. dollar, and the exchange rate is fixed.

Contents: Summary. Expected timetable. Definitions. Preliminary. Conditions of the new issue. Share capital. Indebtedness. Risk factor. Directors and corporate information. Parties involved in the new issue. Information relating to the Group: Introduction, corporate structure, history and development (see separate record), strategy, brands, market share and competition, marketing and sales, operations, tofu, Guang Ming Farm, Gardner Merchant, financial information, future plans and prospects, directors, management and staff, trademark valuation, profit and dividend forecasts, proceeds of the New Issue and working capital, adjusted net tangible assets and net assets. Appendixes: 1. Accountants' report. 2. Profit forecasts. 3. Trademark valuation. 4. Property valuation. 5. Statutory and general information. Prospectuses and application forms. Procedure for application.

Financial summary (in million Hong Kong dollars): Turnover (sales) has grown from 795 in 1991 to 912 in 1992 to 996 in 1993. Profit before taxation has grown from 43.8 in 1991 to 88.6 in 1992 to 108.8 in 1993. The company has 5 executive directors and 4 non-executive directors. All of the directors have British, Australian, U.S., or Canadian nationality. Three of the 5 executive directors are children of the founder, K.S. Lo: (1) Mr. Winston Lo Yau Lai, age 52, of Hong Kong (British nationality). Frank graduated from the University of Illinois with a BS degree in Food Science, then earned his MSc degree in Food Science from Cornell University in New York; (2) Mr. Frank Lo Yau Ki, age 54, of Hong Kong (British nationality). Frank attended Queensland Agricultural College where he obtained a diploma in dairy manufacturing before joining the group in 1965; (3) Ms. Yvonne Lo Mo-Ling, age 45, of San Francisco (California; USA nationality). Yvonne is president of the Group's operations in the USA and has been responsible for them since 1980. She received a BA degree from Oberlin College in Ohio and took undergraduate studies in Urban and Regional Planning at the University of Toronto in Canada.

Brands: Vitasoy soybean milk is the Group's principal product. Sales (in million Hong Kong dollars) were $337.4 in 1991 (42.5% of total sales), $397.0 in 1992 (43.5% of total), and $411.6 in 1993 (413% of total sales). Sales of tofu and other food products were $32.9 (US$4.21 million) in 1991, $50.2 (US$6.44) in 1992 and $50.7 (US$6.5) in 1993.

In terms of turnover (sales) by geographical area, Hong Kong is by far the leading area with 78.9% of total worldwide turnover ($995 million) in 1993, followed by North America (12.0%), Macau (2.4%), Singapore (2.2%), PRC (1.6%), Australia/New Zealand (1.6%), and others (1.1%).

Senior management includes: Mr. Jerry Maynard, age 43, who is president of Nasoya. He joined the group in 1988 and became president of Nasoya in Sept. 1993. Mr. Michael Ho, age 38, is president of Azumaya. He joined the Group in 1982 and became president of Azumaya in June 1993.

Trademark valuation: An independent valuer has valued them at HK$260 million.

Assets: The main trade marks are Vitasoy, Vita, Balanz, Azumaya, and Nasoya. Tangible: $781 million. Net assets: $1,051 million.

Subsidiaries: Value of issued and paid up share capital: Vitasoy (U.S.A.) Inc. US$12.0 million. Nasoya Foods Inc. US$6.346 million (incorporated 13 July 1990). Azumaya Inc. US$6.5 million (incorporated 1 July 1969).

Properties: The main property, located at No. 1 Kin Wong St., Tuen Muen, New Territories, has a capital value of HK$140 million on 28 Feb. 1994. This is a 17-story industrial building, completed in 1986, on a site of 33,250 square feet (3.089 square miles). It has a total gross floor area of approximately 311,815 square feet, including 38 lorry parking spaces and 22 private parking spaces. The property is held from the Government under New Grant No. 2606 for a term extending to 2047. The current ground rent is $600 per annum. The Azumaya rental property comprises 37,172 square feet of interior floor space on 2 acres of land. Monthly rental is about $20,000. Address: No. 1, Kin Wong Street, Tuen Mun, New Territories, Hong Kong. Phone: 466 0333.

2188. Vitasoy International Holdings Ltd. 1994. History and development (Document part). In: New issue of 127,200,000 shares of $0.25 each at $2.28 per share: Prospectus. 1994. Hong Kong: Vitasoy. 94 + 94 p. See p. 14-15. March 15. 28 cm. [Eng; Chi]

• ***Summary:*** The Company, originally named Hong Kong Soya Bean Products Company Ltd. was founded in March 1940 by four men, Mr. (later Dr.) Lo Kwee Seong, Mr. Shiu Wai-Ming, Mr. Chan Nam-Cheong, and Mr. Kwan Yim-Chor. The Company's first product, named Vitamilk, was first sold in Hong Kong just prior to the outbreak of World War II. Note: Production began on 9 March 1940. Vitamilk was fortified with calcium, cod-liver oil, and vitamins, and sold in small milk bottles. Production of Vitamilk ceased during the War, but after the War the Company relaunched Vitamilk, which was then produced at and sold from, small premises in Causeway Bay. 1950–The Company moved to new premises in Aberdeen to keep up with growing sales; it now had increased production capacity and facilities for research and development. At the same time the Company became the franchisee for Green Spot, an orange flavoured soft drink. Green Spot proved highly popular in Hong Kong and provided the company with the opportunity to gain important experience in pasteurization and sterilization techniques. 1953–This new expertise led to the Company's development of a sterilized version of Vitamilk, which had a longer shelf life. At the same time the product was renamed Vitasoy in English and repackaged in narrow-necked soft drink bottles, which replaced the traditional milk bottles. Note: In 1953 the company first began to work with UNICEF to popularize the use of soy beverages in developing countries. 1957–The Pepsi-Cola franchise replaced the Green Spot franchise.

1960–The image of Vitasoy as a nutritious quality product received a boost when UNICEF became aware of the attractions of a high protein, vitamin enriched soybean milk for use in developing countries. 1961–An additional soymilk production plant was opened in Kwun Tong to keep up with rapid increases in sales of Vitasoy. 1962–The introduction of a malt Vitasoy helped lead to further increases in sales. From 1955 to 1970 sales of Vitasoy grew from approximately 12 million bottles to approximately 60 million bottles per annum.

1970s–The Company continued to expand and develop. 1975–A major development was the adoption of a new Tetra Pak packaging process, which brought many benefits. "In addition to enhancing the quality of the product, the new light and disposable packaging meant that Vitasoy could be sold in the non-returnable soft drinks market which significantly reduced both the delivery costs of the product and the costs associated with collecting returned bottles. The new packaging also offered greater scope for innovative design which assisted in marketing the Company's products. To coincide with this technical innovation, in the mid-1970s the Company repositioned Vitasoy in the market by promoting it as a soft drink as well as a milk substitute. The remainder of the 1970s saw the Company's product base expand away from Vitasoy and malt Vitasoy.

1976–A range of fruit juice drinks was introduced under the vita brand name. These were also packaged in Tetra Pak cartons and initial flavors included orange, lime, mango, and guava. 1976–The Company decided to relinquish the Pepsi-Cola franchise in favor of producing its own range of carbonated drinks, again under the Vita brand name. The carbonated products, which included cola,

orange, lemon lime, and cream soda, were initially sold in returnable bottles and subsequently also in the form of fountain syrups. Both Vita Juice drinks and Vita carbonated drinks won immediate consumer acceptance upon their introduction. 1977–Exports to Australia began. 1978–Vita Juice drinks now have over 30% of the Hong Kong fruit juice drinks market. 1978–The Company moved its Aberdeen production facilities to Heung Yip Road in Aberdeen. 1978–The Company launched a line of traditional teas, the first of which was chrysanthemum, which were sold under the Vita brand and packaged in Tetra Pak cartons.

1979–The Company began a further significant diversification of its business by entering into an agreement with Guang Ming Farm [at Shenzhen, just inside China]. Under the initial agreement, which was for a term of 5 years, and subsequent revisions to this agreement, the Company obtained the rights to market and sell most of the farm's fresh milk output in Hong Kong and Macau. Today the farm produces approximately 55% of all fresh milk sold in Hong Kong.

The late 1970s and early 1980s were characterized by the Company's push into overseas export markets. Each of these export markets took time to develop, both in terms of developing consumer awareness of the Vitasoy and Vita products and particularly in identifying the most suitable and effective distribution channels. 1979–Exports to Papua New Guinea and to Canada began. 1979 Jan. 15–Vitasoy (U.S.A.) Inc. is incorporated.

1980–Exports to the United States began. 1982–In the United States, the Company established its own distribution operations. 1982–Exports to Singapore began. 1985–The Company acquired the operations of its Singapore distributor to gain greater control over and more efficient distribution of its products. 1987–Due to growth of operations, the Company opened a new head office and principal manufacturing facility in Tuen Mun. 1989–The Company acquired a 12% equity stake in its contract packer in Papua New Guinea to gain greater control over and more efficient distribution of its products.

1990 Sept. 24–The Company name is changed to Vitasoy International Holdings Ltd. from Hong Kong Soya Bean Products Co. Ltd. 1990–The Group made the first of two significant diversifications from its traditional business by entering into a joint venture with Gardner Merchant to provide large-scale contract catering services in Hong Kong. Gardner Merchant, headquartered in the United Kingdom, is one of the leading contract catering firms in the UK; the Group has a 40% interest in the joint venture.

1990 Aug.–In its second diversification the Group entered into the manufacture and distribution of tofu in the United States through the purchase of Nasoya, based in Leominster, Massachusetts on the east coast of the United States. 1993 May–The Group acquired Azumaya, a large tofu manufacturer based in San Francisco, California, with a distribution network covering the west coast and mid west of the United States. These acquisitions have not only made the group a [sic, the] leading manufacturer and distributor of tofu in the United States but have also provided the Group with an extensive distribution network throughout the United States and Canada for its other products. 1992–Distilled water was launched under the Vita brand.

1994 Feb.–The Group opened a new production facility on a site at Guang Ming Farm at Shenzhen in the PRC [China] to replace the group's plant in Aberdeen. The Shenzhen plant, which has been built and will be operated pursuant to a joint venture with Guang Ming Farm, is currently operating at partial capacity and is expected to be fully operational by the middle of 1994. The Group's old production and packaging facility at Aberdeen is currently being leased by the Group to provide production capacity unti the Shenzhen plant becomes fully operational. At that time the Group will cease to lease the facility at Aberdeen and all beverage production will then be at Tuen Mun and Shenzhen. Address: No. 1, Kin Wong Street, Tuen Mun, New Territories, Hong Kong. Phone: 466 0333.

2189. **Product Name:** Yves' Original Bagel Dog, or Chili Bagel Dog.
**Manufacturer's Name:** Yves Veggie Cuisine.
**Manufacturer's Address:** 1138 East Georgia Street, Vancouver V6A 2A8, B.C., Canada. Phone: 604-251-1345.
**Date of Introduction:** 1994. March.
**Ingredients:** Bagel Dog: Veggie Wiener: Water, soy protein isolate, wheat gluten, tofu (water, organic soy beans, magnesium chloride), wheat starch, sea salt, ground mustard, guar gum, natural liquid hickory smoke, beet powder, paprika, brown rice syrup solids, wheat germ, spices. Bagel: Whole wheat flour, unbleached white flour, water, vinegar, yeast, malt, sea salt.
**Wt/Vol., Packaging, Price:** 4.4 oz (125 gm).
**How Stored:** Frozen.
**New Product–Documentation:** Leaflet (8½ by 11 inch, color) from Natural Products Expo West (Anaheim, California). 1994. March 10-13. "Two great ideas. A great new meal. Introducing Yves' Original Bagel Dog. Yves' famous fat-free Veggie Dog, hand-wrapped in a whole-wheat bagel and baked to perfection." Front side shows a color photo of 3 bagel dogs. Back side gives ingredients and nutritional information.

2190. Graves, Cheri. 1994. Update on Cedar Lake-MGM Foods in Cedar Lake, Michigan (Interview). *SoyaScan Notes.* April 19. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Vesper C. Sias is no longer with this company but he is still alive. The company is now owned by Mr. Alejo Pizzaro, who was formerly with Loma Linda Foods.

He bought the company in 1989 or 1990. Mr. Pizzaro now works at Cedar Lake's marketing offices at 12155 Magnolia Ave., Suite 3E, Riverside, California 92503. Phone: (909) 352-3554. In 1993 MGM Brands (of Scarborough, Ontario, Canada) and Cedar Lake joined forces; their products are very similar except that MGM made frozen vegetable protein foods in Canada and Cedar Lake made similar canned foods in Michigan. The MGM plant was moved to Cedar Lake, where all food production no takes place. Address: P.O. Box 65, Cedar Lake, Michigan 48812. Phone: (517) 427-5143.

2191. *Ontario Soybean Growers' Marketing Board Newsletter.*1994. Profiles: Fred Brandenburg, Tino Breuer, and co-workers. April. p. 7.
• ***Summary:*** A photo shows Fred Brandenburg, who is the Secretary-Manager of OSGMB. He is only the fourth secretary in the organization's 45 year history, following Ken Standing, Otis McGregor, and Doug White. He knows as well as anybody that soybeans in Ontario are still a good-news story. "Acreage is trending upward, and the 18,000 producers who harvested 64 million bushels last fall will inject a record $500 million into the Ontario economy." Breuer is OSGMB market analyst. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2192. Davis, Bob. 1994. Future plans (Interview). *SoyaScan Notes.* May 7. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Bob finds his present work, developing new products for Sharon's Finest of California, to be a lot of fun. One of his goals is to help in developing a fast foods restaurant system, working with someone else (such as Richard Rose) who would take care of the business aspects. Bob would like to work on the steering committee, and do the product development and concept work. The nucleus of three alternative food organizations that he is working with in Vancouver, BC, Canada, is very strong. Sunrise Markets makes the best firm tofu he has tasted anywhere, and the company has a lot of "firepower." Then they have Yves, plus the plant that he set up with the alternative cheese program; they plan to start making Sharon's Finest cream cheese alternatives in about 2 weeks. So he has a complete line of soyfoods including meat- and dairy alternatives. He would like to organize these companies so they become suppliers to a turnkey fast food operation. Address: 3812 E. Goldfinch Lane, Clinton, Washington 98236. Phone: 206-341-1259.

2193. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada).*1994. Serial/periodical. Chatham, Ontario, Canada: Ontario Soybean Growers' Marketing Board. Began with Vol. 7, No. 2. May 1994. Renamed Canadian Soybean Bulletin with Vol. 13, No. 1 (June 1999).
• ***Summary:*** Continues *Ontario Export Soybeans.* This bi-annual newsletter was formerly 2 pages, green on yellow; it is now 4 pages, dark green and brown on tan.

Letter (fax) from Kim Cooper, marketing specialist at OSGMB. 1995. May 25. "Seeking to be more Canadian in our approach, we changed to *Canadian Export Soybeans* in May of 1994, and this year I will be publishing three newsletters. At present, I have a mailing list of approximately 600, and am continually updating this list."

Starting in Jan. 1996 (Vol. 1, No. 1) a *Technical Bulletin* (printed in red and black ink on beige paper; 1 page, front and back) was inserted in many issues of *Canadian Soybean Exports.* It contained technical articles with titles such as: "Evaluation of soybeans for tofu processing." Address: Chatham, Ontario, Canada.

2194. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada).*1994. Export market development. 7(2):1. May.
• ***Summary:*** "Ontario's soybean exporters are reaching into new markets in the Asia / Pacific region in an effort to expand sales for food use. Three Ontario companies raveled with representatives of the Ontario Soybean Growers' Marketing Board and Agriculture Canada to Indonesia, Taiwan and Korea, February 27-March 8, 1994.

"Ontario companies have been exporting food quality soybeans to Japan, Hong Kong, Malaysia and Singapore for almost 20 years. Soybean exporters are optimistic about prospects of doing business in the region since the economies of these new markets are booming and showing a willingness to lower trade barriers and thereby improve our access to their markets."

A photo shows OSGMB's Second Vice Chairman Tom Lassaline making a presentation to Canada's ambassador to Indonesia Mr. Larry Dickenson.

2195. Melina, Vesanto; Davis, Brenda; Harrison, Victoria. 1994. Becoming vegetarian: A complete guide to adopting a healthy vegetarian diet. Toronto, Canada: Macmillan Canada. x + 262 p. Foreword by Louise Lambert-Lagacé. Index. 26 cm. [20 ref]
• ***Summary:*** An excellent vegan sourcebook and cookbook by three registered dietitians. For the Contents and details, see the 1995 revised American edition.

Talk with Vesanto Melina. 1996. July 22. This book has presently sold about 25,000 copies in Canada alone. A revised U.S. edition was published in Nov. 1995 by The Book Publishing Co. in Summertown, Tennessee. Address: Canada.

2196. Schumacher, Leon G.; Fosseen, Dwayne; Goetz, Wendel; Borgelt, Steven C.; Hires, William G. 1994. Fueling heavy duty diesel engines with blends of soydiesel and low sulfur diesel fuel. In: Bruce E. Dale, ed. 1994. Liquid Fuels,

Lubricants and Additives from Biomass: Proceedings of an Alternative Energy Conference. St. Joseph, Michigan: ASAE. viii + 191 p. See p. 166-74. Held 16-17 June 1994 at Kansas City, Missouri. [12 ref]
• ***Summary:*** Contents: Abstract. Keywords. Introduction. Review of literature. Purpose and objectives. Methodology. Results. Discussion. Conclusions. Recommendations.

"The optimum blend of biodiesel and diesel fuel, based on the trade-off of PM [particulate matter] decrease and NOx increase was a 20/80 biodiesel / diesel fuel blend. NOx emissions can be reduced by retarding timing while subsequently maintaining emission reductions..." Address: 1, 4-5. Agricultural Engineering Dep., Univ. of Missouri, Columbia, MO 65211; 2. President, Fosseen Manufacturing and Development, Radcliff, Iowa; 3. Heavy Duty Engine Testing, ORTECH International, Toronto, ONT, Canada L5K 1B3.

2197. *SoyaCow Newsletter (Ottawa, Canada).*1994. Agriculture Canada to develop protein isolates from soymilk. 3(2):2. April/June.
• ***Summary:*** The research will be headed by Dr. C.Y. Ma, a leading protein chemist at Agriculture Canada. The soymilk will be made from whole soybeans using ProSoya's patented process of air-less cold grinding.

2198. *SoyaCow Newsletter (Ottawa, Canada).*1994. A Soyafood Alliance getting ready to go global with government support. 3(2):2. April/June.
• ***Summary:*** Agriculture Canada has decided to support a team of companies on a matching grant basis to develop value-added products and global markets based on milk from the SoyaCow. The companies include ProSoya, Gelato Fresco (an ice cream company), and two well-known dairies.

2199. Stumborg, Mark; Wong, Al; Hogan, Ed. 1994. Hydroprocessed vegetable oils for diesel fuel improvement. In: Bruce E. Dale, ed. 1994. Liquid Fuels, Lubricants and Additives from Biomass: Proceedings of an Alternative Energy Conference. St. Joseph, Michigan: ASAE. viii + 191 p. See p. 157-65. Held 16-17 June 1994 at Kansas City, Missouri. [17 ref]
• ***Summary:*** Contents: Summary. Introduction. Vegetable oil sources (rapeseed, prairie canola). Canadian hydroprocessing technology. Hydroprocessed product evaluation. Economics of hydroprocessing. Future developments. Conclusions.

In Canada, hydroprocessing has four advantages over esterification. Table 1 shows area (in 1,000 ha) of oilseed production in Canada from 1985-1992 for rapeseed / canola (avg. 2788), flaxseed (607), soybeans (454), and sunflower (55). Address: 1. Agriculture Canada; 2. Arbokem Inc.; 3. Natural Resources Canada.

2200. Eridania Béghin-Say (Montedison Group). 1994. Annual report 1993. 54, avenue Hoche, BP 47108, 75360 Paris Cedex 08, France. 67 p. 30 cm. [Eng]
• ***Summary:*** Renato Pico is the company's chairman. The company's turnover (in million French francs) increased from 49,741.4 in 1992 to 50,907.4 in 1993. Operating income increased from 3,618.4 in 1992 to 4,039.8 in 1993. Net income from continuing operations increased from 1,287.0 in 1992 to 1,531.0 in 1993.

The company's core business is sugar and derivatives. It is active in the starch and derivatives sector through Cerestar. It is a leader in the crushing and refining business through Cereol in Europe (which holds a market share of nearly 23%), through Central Soya (number 3 in North America in this sector), with CanAmera in Canada (50% owned), and number 1 in the world for refined lecithins and concentrated proteins. In 1993, the group's 32 plants crushed some 9.4 million tons of oilseed to produce 6.8 million tons of soybean meal and 2.2 million tons of crude oil, including 1.8 million tons of refined oils. Crushing and refining contributed 28.1% of the company's total turnover and 12.4% of the total operating income.

The company is active in animal feed through Provimi in Europe; in 1993 the company's total production of animal feed totalled approximately 2.2 million tons. The company is active in consumer products (mostly refined oils and derivatives) through Medeol, Lesieur in France, Koipe in Spain, Carapelli in Italy, and Ducros in France, Italy, Spain, and Portugal. In 1993, Eridania Béghin-Say marketed 100 million liters of olive oil and 225 million liters of seed oil under its own brands, mainly for consumer and catering markets. Address: Paris, France.

2201. Yves Veggie Cuisine. 1994. The meatless alternative: Tasty, wholesome, and convenient (Ad). *Vegetarian Gourmet (Montrose, Pennsylvania)* No. 10. Summer. Inside rear cover.
• ***Summary:*** The full-page color ad features Yves Veggie Wieners and Yves Burger Burgers. The two products are shown on a plate, ready to serve, and the attractive package for each product is displayed. "Try our complete line of products: Burger burgers, Veggie wieners, Tofu wieners, Chili dogs, Deli slices, Garden vegetable patties, Garden patties with mushrooms and fine herbs, Veggie Pepperoni. The perfect complement to today's active lifestyle." Address: Vancouver, BC V6A 2A8, Canada.

2202. Dovgan, Alexander; Dovgan, Tamara. 1994. Re: Interest in making tofu and tempeh in Russia. Letters to William Shurtleff at Soyfoods Center, Aug. 18-22. 3 p. Handwritten. [Eng]
• ***Summary:*** Alexander and his family (wife Tamara and daughter Sasha) are Russian Canadians who came to

Canada almost 5 years ago. "First of all, thank you for your books and we learnt a lot with them and they helped us to survive with a very small amount of money! We plan to return to the Soviet Union and we have a dream to start our own tofu-tempeh business, as it would help so many to regain their health and save animals, the environment, etc. We were very unhealthy as we had very poor nutrition in Moscow partly because of total ignorance as the grains and legumes were widely available but nobody knew anything about sprouting, combining, etc.

"We always make our own tofu, and now we are trying to make tempeh and to bake okara breads using whey, etc."

Tamara is a professional pianist, who works in the Opera Theater and in the Yamaha School of Music. Alexander is a photographer. They are both lucky to have jobs now.

Bill Shurtleff of Soyfoods Suggests suggests that they talk with Jon Cloud, which they do, and meet Alexander Podobedov. He sends them photocopies of articles about the SoyaCow in Russia.

Letter No. 2. Alexander is concerned that soyabeans are not available in Russia "as they were used only to make chocolate and oil." They have saved some money in Canada but they have no place to live in Moscow since their family moved to the USA. "That's why we're thinking about starting in St. Petersbourg, as its cheaper and its one of the most beautiful cities... Sasha makes Russian tofu at home (it's hard and cheeselike with herbs) as Russians wouldn't eat traditional plain tofu. But all our Russian and Canadian friends like it, so we'd be happy to be pioneers in that field in our native land."

Letter No. 3. Sasha plans to go to Moscow soon to find out everything about soybeans. Their 6-month-old son, Daniel, likes tofu very much. Address: 2350 Dundas West #2813, Toronto, ON M6P 4B1, Canada. Phone: (416) 534 8896.

2203. **Product Name:** Firm Tofu.
**Manufacturer's Name:** Atlantic Soy Products.
**Manufacturer's Address:** 311 Lancaster St., Saint John West, NB E2L 1J8, Canada. Phone: 506-693-6432.
**Date of Introduction:** 1994. August.
**New Product–Documentation:** Talk with Peter Olive, owner, who phones from Canada. 1994. Aug. 28. He started making tofu in Aug. 1994. He makes only firm tofu.

Note: This is the earliest known commercial soy product made in New Brunswick, Canada.

2204. *Ontario Soybean Growers' Marketing Board Newsletter.*1994. Korean soybean curd manufacturers visit. Aug. p. 3.
• ***Summary:*** "Eleven representatives of the Korean Soybean Curd Manufacturers Federation toured southern Ontario in late May to get a first-hand look at the soybean industry. The group included the chairman of the federation, Mr. Chang Ye-Kyu and representatives of regional associations."

"Korea imports over 1,000,000 tonnes [metric tons] of soybeans annually, mostly from the United States. Approximately 130,000 tonnes or 5,000,000 bushels are used to manufacture tofu. All imports are handled through a government agency which has made a practice of buying crush quality soybeans and re-cleaning for sale to soyfoods manufacturers. Soyfood manufacturers would like to be able to buy higher quality soybeans but they have not been available in the Korean marketplace.

A large photo shows four Koreans comparing samples of #1 grade white hilum soybeans and #2 crush quality soybeans during their tour of the Sarnia grain terminal. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2205. Buzzell, R.I.; Jessop, D.B.; Buttery, B.R. 1994. Evaluation of soybean varieties for tofu processing. Agriculture & Agri-Food Canada Research Centre, Harrow, Ontario N0R 1G0, Canada. 15 p. Sept. 8. Unpublished manuscript.
• ***Summary:*** For the updated, published, and condensed version of this report see Ma et al. 1996. Address: Harrow, Ontario, Canada.

2206. Webber, John. 1994. Soybean gets new president: Larry Horn will move to Quincy from his job as a senior vice president of a Canadian company that processes oilseed. *Herald-Whig (Quincy, Illinois).* Sept. 8. p. 1A.
• ***Summary:*** Larry Horn, a Mississippi native and graduate of Mississippi State University, has been "senior vice president of CanAmera Foods, which crushes soybeans and canola seed, and processes the oil and meal. The firm is a joint venture involving Central Soya, Saskatchewan Wheat Pool and Manitoba Pool Elevators." Horn helped organize the Ontario Oilseed Association, and is a former chairman of the Canadian Oilseed Processors Association. He is also a director of the U.S. Canola Association.

Horn will become president of Quincy Soybean on Oct. 1, succeeding Mike Foster, according to Thomas McKenna, president and CEO of Moorman Manufacturing Co. Foster was named president of Moorman's feed business on July 1.

"MoorMan's, Quincy Soybean, and Quincy Design and Manufacturing Inc. are the three core firms under the Moorman Manufacturing Co. corporate umbrella. The arrangement is the result of a corporate restructuring program that began several years ago.

"Quincy Soybean employs about 340 at its storage and crushing facility on Gardner Expressway."

Talk with Mike Foster, former president of Quincy Soybean Co. 2005. Sept. 17. Of the 3 divisions of Moorman Manufacturing Co. listed above, MoorMan's refers to a relatively new name for the feed company, and Quincy

Design and Manufacturing Inc. refers to a sheet metal design and fabrication plant, which made equipment, especially feeders for livestock. It was a very small division; when Moorman's total sales were around $1 billion, the sheet metal business was only $5-10 million. At some time after 1994 Moorman sold that division. Moorman Manufacturing Co. had these 3 divisions before it purchased Quincy Agri Sales, which is now Seedwest, a division of ADM Edible Bean Specialties.

When Mike returned to Moorman Mfg. Co. from Quincy Soybean in 1994, the feed division and the holding company were one and the same. People often referred to both as "Moorman's" for short. Shortly after returning, Mike was involved in establishing the holding company, still named Moorman Manufacturing Co., and separating it from the feed division, which was named MoorMan's, Inc. Address: H-W staff writer.

2207. *SoyaCow Newsletter (Ottawa, Canada).*1994. Plenty's El Salvador Project feeding soya to 500 kids. 3(3):1-2. July/Sept.
• ***Summary:*** With the financial help of the members of the Bell's Corners United Church near Ottawa, together with Plenty Canada and the Canadian International Development Agency (CIDA), a SoyaCow project has been established in El Salvador in the poor municipality of Mejicanos. Two SoyaCow SC20 systems are in operation providing soymilk and soy ice cream to over 500 local kindergarten children. The left-over okara is used as an ingredient in making tortillas. A photo shows children enjoying soymilk at school in Mejicanos.

2208. *SoyaCow Newsletter (Ottawa, Canada).*1994. Russian ASSOY director tours Canadian food processors. 3(3):1-2. July/Sept.
• ***Summary:*** "Mr. A. Podobedov, General Director of the Russian Soybean Association, visited Canada in early September to tour a variety of soyfood and dairy processors. His objective was to gain insights into the production of tofu, ice cream, and dairy-type beverages made from soymilk. The tour was a complement to his visit to ProSoya Inc., the company building the industrial-scale SoyaCow SC2000 systems for installation in Russia.

Mr. Podobedov visited: La Soyarie in Hull, Quebec (which makes tofu and meat alternatives; President: Mr. Koichi Watanabe); scientists Dr. C.Y. Ma and Dr. W. Modler of Agriculture Canada (they are developing isolates and concentrates from soymilk); the Neilson Dairy facility in Ottawa; and Gelato Fresco (which is making soy ice cream and has signed a distribution deal with Modern Products, of Milwaukee, Wisconsin).

2209. *SoyaCow Newsletter (Ottawa, Canada).*1994. First SC-100 plant installation completed. 3(3):2. July/Sept.
• ***Summary:*** "The installation of the first SC-100 plant has now been completed at ProSoya's Canotek road facility. The plant has been built to modern dairy standards complete with tiled floor, CIP system, culinary steam supply, and purified water supply. The plant presently can produce 500 L/H of high quality non-beany soymilk. The refrigerated storage capacity is 20,000 litres.

"The Canotek plant will also be used as a pilot facility to implement technology improvements and perform product development on an on-going basis."

2210. Soyatech, Inc. 1994. Soya Bluebook '94. Bar Harbor, Maine: Soyatech. 272 p. Sept. Comprehensive index. Advertiser index. 28 cm.
• ***Summary:*** This is the first issue of the Bluebook to have fold-out dividers with tabs at the start of each section–a useful addition. On the cover is a large tan / yellow color soybean, with hilum showing clearly, against a blue background.

The large and excellent section titled "Soya statistics" (p. 212-40) has the following contents. All are tables unless indicated by (G) for graphs: Soybean production–Area planted / harvested and yield. U.S. soybean planting and harvesting dates. U.S. soybean acreage, yield and production. U.S. soybean planted acreage by state (1970-1993). U.S. soybean harvested acreage by state. U.S. soybean yield by state. U.S. soybean production by state. Argentine soybean area, yield and production by province. Brazilian soybean area, yield and production by state. Canadian soybean production. Canadian soybean production and utilization. World soybean production by major countries and all others (G). Share of world soybean production by major countries and all others (G). Total world soybean production (G). 1990/91 world soybean production, forecast of market share (G). World soybean production.

Soybeans and soybean products–Supply and disposition: U.S. soybeans: Supply, disposition, acreage / yield and price. U.S. soybean meal and oil: Supply and disposition. Soybean usage in the U.S.: Crush and exports, 1925-1993 (G). U.S. soybean exports as a percent of total usage, 1925-1993 (G). Argentina soybeans & products: Supply and disposition, 1975-1995. Brazilian soybeans & products: Supply and disposition, 1975-1995.

U.S. soybean prices, crop value, farm marketing: Prices of U.S. soybeans: No. 1 yellow, by month, 1950-1994. Prices of U.S. soybeans: Received by farmers, by month, 1950-1994. U.S. soybean price support operations, 1945-1993. U.S. soybean crop value, total and major producing states, 1925-1993. U.S. farm marketings of soybean: Percent of open market sales by month, 1983-1993.

Soybean processing and products: Value of U.S. soybean products and crush margin (per bushel), 1950-1993. U.S. soybean meal: Prices paid by farmers, by month

and average, 1950-1994. U.S. soybean meal: Average wholesale price, by month and average, 1950-1994. U.S. soybean meal: Beginning stocks, production, exports and domestic disappearance, by month, 1987-1994. Prices of U.S. soybean oil, crude, Decatur (Illinois), by month, 1950-1994. U.S. oilseed cake and meals: Supply, disposition & price, 1985-1993 (soybean, cottonseed, linseed, peanut, sunflower). World major protein meals: Supply & utilization, 1989-1994 (soybean, cottonseed, rapeseed, sunflowerseed, fish, peanut, copra, palm kernel). World major oilseeds: Supply & utilization (production, exports, imports, crush, ending stocks), 1989-1994 (soybean, cottonseed, peanut, sunflowerseed, rapeseed, copra, palm kernel). World major vegetable and marine oils: Supply & utilization (production, exports, imports, crush, ending stocks), 1989-1994 (soybean, palm, sunflowerseed, rapeseed, cottonseed, peanut, copra, coconut, olive, fish, palm kernel). U.S. soybean oil utilization, various food vs. nonfood, 1960-1993. U.S. soybean oil: Supply, disposition & price, 1960-1993. U.S. edible fats and oils, supply and disappearance, 1986-1993.

Exports and imports: U.S. soybean exports by month. Brazilian exports of soybeans and products to major countries. U.S. soybean exports by port and country of destination. U.S. exports: Soybeans by country of destination. U.S. exports: Soybean oilseed cake and meal by country of destination. U.S. exports: Soybean oil by country of destination. U.S. exports: Soybean, cottonseed and sunflowerseed oils by country of destination. Soybean and product exports by major countries (soybean equivalent; U.S., Brazil, Argentina), 1970-1993 (G). Share of world soybean and product exports (U.S., Brazil, Argentina), 1970-1993 (G).

The section title “Soya glossary: Terms commonly associated with soybeans products and processing” states (p. 243): “Soy protein concentrate: Produced from defatted flakes or flour by a process which immobilizes the protein and removes soluble sugars, minerals, etc. Concentrate has a protein content of 70%.” Note: This is the last issue of the authoritative *Bluebook* that defines a soy protein concentrate as containing 70% protein. Subsequent definitions require only 65% protein. Address: 318 Main St., P.O. Box 84, Bar Harbor, Maine 04609. Phone: 207/288-4969.

2211. Thompson, Keith; Brown, Edward. 1994. Breeding soybeans for use in making tofu at Jacob Hartz Seed Co. Part I (Interview). *SoyaScan Notes.* Oct. 11-12. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** In late 1987 Keith Thompson visited Soyfoods Center and he and William Shurtleff worked together to design a system that Jacob Hartz Seed Co. could use to more effectively breed soybeans for food uses. The purpose of this interview is to find out if that system was implemented, and if so how, and how it is working.

Hartz has hired Dr. Keshun Liu, a PhD in food science. His job is basically trying to interface between soybean breeders, Keith, and the soyfoods industry.

There are three main problems in breeding soybeans for use in making tofu. The first and biggest problem is that most tofu makers never seem to be willing to pay a premium price for their soybeans–unless the soybeans are organically grown, in which case tofu makers will pay huge premiums. The big market for tofu beans is in Japan. Hartz sells about 40,000 bags/year (each 50 lb) to tofu makers in the USA; one tofu maker in Hawaii buys about half of these. From these companies, Hartz is able to get a premium of about $2.50 per bushel over the CBOT (Chicago Board of Trade) price. Until tofu makers are willing to pay a premium for soybeans that give tofu with better yield and quality, they must be willing to accept varieties that are already developed. Tofu beans are pretty much a commodity, since there are a lot of large-seeded, clear hilum beans grown in the Midwest that perform pretty well for tofu. Natto makers are willing to pay a good premium for their soybeans because natto beans are inherently lower yielding and have many special characteristics that are difficult to breed and select for. Because Hartz has limited storage, they breed in the areas where they can get the best premiums. Hartz hedges 100% of its soybean transactions. So it tends to charge a fixed dollar amount (its margin) over the CBOT price.

In growing out new varieties, Hartz contracts with farmers to grow the beans, then buys back 100% of these beans at a pre-determined price, bags them in a Hartz bag, and sells them to soyfoods makers. It does not prefer that farmers sell its beans to soyfoods makers, though farmers have the right to do this. Hartz’s 428-acre breeding farm is used solely to produce breeder and foundation seed stock–the first 2 generations. The Plant Variety Protection Act of 1972 gives plant breeders some rights over the products they produce in their breeding programs, and prohibits farmers from selling protected seed to other farmers–like a seed company. But farmers can save their own seed and plant it in the future–which means he doesn’t have to buy seed from a seed company for a long time. Hartz doesn’t like that and he thinks there is a movement to mitigate that. For example, farmer-saved wheat seed was so extensive that Pioneer Hi-Bred withdrew from the market. All Hartz’s varieties are plant variety protected.

When Keith entered this business in 1978 there were 8-9 soybean varieties in 3 different maturity groups in the entire southern USA (13 states) that the farmer could choose from; now he has about 150-200 varieties to choose from. Breeders have incrementally increased yield, disease resistance, targeted soil type adaptability, etc.

Soybean farmers generally look carefully at and plant the latest, best yielding varieties since they expect to get better yield, disease resistance, etc.–and save money. Why do soyfoods manufacturers not think the same way. Why would they not be willing to pay more for a new bean that will give them a 10% higher yield? Keith does not know. He thinks these manufacturers get a variety that works well and don't want to change their process. He often cannot even get them to test a new variety; its too much trouble (not surprising). Another problems is that some tofu manufacturers like one variety very much, and others don't like it at all. But the three missing links in this process are (1) research in the breeder's lab to show how the new soybean variety behaves in making tofu (yield, taste, composition, price per pound of tofu, etc.) and (2) comparing the performance of this variety with varieties used by major tofu manufacturers; (3) compiling the results of this research as information that can be easily understood by any soyfoods maker. Breeders now do this for soybean farmers but not for soyfoods makers. Is the tofu market too small for a breeder to make this investment? Not if you include East Asia, Southeast Asia, the USA, and Europe. For many years Singapore and Hong Kong have imported mostly Canadian beans with a pretty low margin. Japan has a tradition of buying IOM beans out of the Midwest, but IOM is no longer a meaningful term because we change varieties so fast. It used to be a large-seeded, clear-hilum mix of several varieties but now it can be almost anything. A portion of the users of Japan's 500,000 metric tons to make tofu is willing to pay a premium for variety soybeans. Hartz exports about 3,000 tons/year to Japanese tofu makers, but they still don't have a good variety. Continued. Address: 1. Food and Export Manager; 2. PhD, Soybean Breeder. Both: Jacob Hartz Seed Co., P.O. Box 946, Stuttgart, Arkansas 72160. Phone: 800-932-7333.

2212. Thompson, Keith; Brown, Edward. 1994. Breeding soybeans for use in making tofu at Jacob Hartz Seed Co. Part II (Interview). *SoyaScan Notes.* Oct. 11-12. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** The second problem is that the science of breeding soybeans for tofu is not well understood. We still don't understand the basic theory as to what constitutes a good soybean for making tofu–a good tofu bean. What are the main compositional factors that affect tofu yield, flavor, and consistency (hardness or softness). It is not clear what characteristics breeders should select for when breeding tofu beans–except for the bean's physical appearance. Keith has a very close Japanese contact who is doing excellent work at a lab in a university in Japan, trying to understand what causes one soybean to be better than another for making tofu. He has made a lot more progress than Hartz has, and his work is quite confidential. Hartz has tried to get permission from the Japanese for Dr. Keshun Liu to visit that lab, but they won't even talk about it. Keith's talks about this university researcher with Takashi Matsumoto in large trading company, but he doesn't recall the name of the tofu researcher at the university. The trading company is funding the research and is very forward looking.

The third problem is that the Japanese who buy soybeans that will eventually be used for making tofu have a number of strong preconceptions about the way these soybeans should look–regardless of the amount and quantity of tofu that can be made from them. They want a soybean with very large seed size (less than 2,000 seeds/lb), a clear hilum, and dull-luster–that looks like it a typical soybean grown in Japan. If the soybean doesn't look like that, they don't care how good the tofu yield or flavor are. The Japanese seem to prefer what are called "Vinton-type" soybean varieties for making tofu. These include Vinton [a Midwest variety introduced in 1978 by breeder Walt Fehr and Iowa State University] and Harovinton (from Harrow, Ontario, Canada). These are large-seeded clear hilum beans [perhaps traditionally called vegetable-type soybeans]. "Vinton-type" soybeans now sell (cleaned and in bulk) for only about $0.80 to $1.75 over the Chicago Board of Trade (CBOT) price. That is not enough of a premium to attract Hartz. Hartz has developed on soybean that seems to have excellent characteristics for making tofu. But the Japanese don't want this soybean because it doesn't look like what they are used to. It is oblong and not as uniform as usual.

Eddie Brown hasn't given up on tofu beans; he is doing a lot of work and making a lot of crosses. Hartz has 40 acres of a variety it will be harvesting in the next 2-3 weeks and releasing next year that was selected primarily based on seed size, but also protein content. This line is quite large seeded, with 1,400 seeds/lb. Yet agronomically, it is a second or third class variety, so Hartz must charge more for it to counterbalance its lower yield. It is difficult to grow large-seeded soybeans in the south since it is generally true for soybeans that the further you go north and the earlier the maturity group, the larger the seed size and the more the percentage of clear hilum varieties. Some of this is genetic and some environmental. Varieties north of Boothill, Missouri are usually indeterminate, whereas those to the south are determinate. Determinate plants grow to a certain height and then start blooming; indeterminate varieties start blooming when the plants are very small and bloom until they reach normal plant height.

Keith thinks that true Vinton is not grown much any more. The new Vinton-types, developed by Midwest breeders, look like a Vinton but the yield is much better for the farmer. These Vinton-types sell for about $0.80 to $1.75 over the CBOT price.

One reason the Japanese may be demanding Vinton-type soybeans having a certain appearance is so that they can blend our $8/bushel beans with their domestic beans

[Nihon Daizu], which are much more expensive, then sell the blend as if they were all Japanese-grown soybeans.

Japanese are limiting themselves greatly by demanding large-seeded soybeans. Eddie has only 10-15 breeding lines available to him in large-seeded soybeans compared with 2,000 to 3,000 lines of regular-sized soybeans. Breeders in the Midwest have a much larger germplasm base to work with on large-seeded clear-hilum varieties.

Hartz would like to have more of its soybeans grown organically because they could get a huge premium for those soybeans–no doubt about it. Hartz is already producing some organic natto beans, primarily with one big rice grower who is OCIA certified. His main crop is rice, and he has his own rice mill, rice bagging, and rice marketing system. Most rotations in the South are based on either rice or cotton. It is very difficult to find organic acreage in the South unless you find a rice farmer who is philosophically committed to organic farming [like Carl Garrich of the Lone Pine in Arkansas]. Even if Hartz offers farmers a premium of $4/bushel over the CBOT price they are not interested. It doesn't work well with a rice rotation.

Once a soybean seed company makes the commitment to breed soybeans for tofu, it must develop at least a small bench-top tofu-making system in order to quantify and compare different varieties. You need a program and a systematic way of making tofu and measuring the results. You must be able to prove that one soybean is significantly better than other for making tofu–in terms of yield, or flavor, or fat content, or genistein level, whatever. This becomes the basis of marketing the soybean to tofu makers. Address: 1. Food and Export Manager; 2. PhD, Soybean Breeder. Both: Jacob Hartz Seed Co., P.O. Box 946, Stuttgart, Arkansas 72160. Phone: 800-932-7333.

2213. AGP–Ag Processing Inc a cooperative. 1994. Annual report: Partners in food production. 12700 West Dodge Road, P.O. Box 2047, Omaha, Nebraska 68103-2047. 20 p. 28 cm.

• ***Summary:*** Net sales for 1994 (year ended Aug. 31) were $1,377.370 million, up 13.0% from $1,218.614 million in 1993. Earnings before income taxes: $42.727 million, down 4.4% from the $44.659 million in 1993. On the inside front cover is a brief essay about the "150th anniversary of the Co-operative Movement 1844-1894." AGP is owned by 380,000 farmers and 351 local cooperatives. "Today 700 million people around the world share the cooperative form of business. In the U.S., 120 million people are members of over 47,000 cooperatives."

This year AGP's board of directors "declared a patronage payment of $35,786,000. Additionally the board declared a revolvement of stockholders' equity of $14,280,000, bringing AGP current into the 1989 equity balances."

"The combined capacity of our seven [soybean] processing plants ranks AGP fourth in the U.S. in terms of soybean processing capacity." The plants purchase the equivalent of 250,000 acres of soybeans each month for processing. Each day, AGP merchandisers sell 8,000 tons of soybean meal to cooperatives and other companies for the manufacture of feeds."

"In August 1994 AGP purchased all of Maple Leaf Foods Inc.'s Western Canadian deed plants" in Alberta, Canada.

In Nov. 1994, AGP and ADM formed a new company named Consolidated Nutrition, L.C., owned 50-50 by AGP and ADM. It consists of the combined assets of AGP, L.P. and Master Mix Feeds (which was founded in 1935 by Central Soya Inc.) "In July 1994, ADM purchased most of Central Soya's feed and nutrition operations, including Master Mix Feeds."

A color map (p. 18), with 9 symbols, shows all of AGP's business locations in the United States, Canada, and the Caribbean. Another color map (p. 20) show where all of AGP's shareholders are located. Color portrait photos show (1) Knobbe and Lindsay. (2) The towering desolventizer-toaster at the Mason City, Iowa, plant. (3) Aerial view of the St. Joseph, Missouri, plant. (4) The towering 1.7 million bushel capacity grain storage terminal at Lincoln, Nebraska, now leased by AGP. (5) A barge leaving AGP Grain's 4.2 million bushel grain terminal at Duluth, Minnesota. (6) A man holding a small pink pig. (7) The Farmers Cooperative Elevator Co. at Everly, Iowa. (8) Each of the nine members of the board of directors. Address: Omaha, Nebraska. Phone: (402) 496-7809.

2214. Goh, Francis. 1994. Soybean in Singapore and its utilisation for the production of tofu and soymilk. Paper presented at Incoming Soybean Technical Mission. 7 p. 18 Oct. 1994 at Harrow Research Station, Harrow Ontario, Canada.

• ***Summary:*** Singapore (population 3 million, of which 78% are Chinese and 14% Malay) imports 33,360 tonnes (metric tons) per year of soybeans for local consumption and re-export. About 51% of these soybeans are imported from Canada. There are 45 small and medium sized tofu factories in Singapore (which together use 600-700 kg/day of soybeans) and 2 large factories (which together use 2 tonnes of soybeans and each have an are of 1,500 square meters of more). Unicurd is the biggest. Four tofu companies have a history of 70 years in Singapore. No family wants to marry its daughter to a tofu maker because the work requires such long hours, often all night.

Mr. Goh and his wife bought an existing company in 1981. Theirs was the first company in Singapore to bring automatic machinery from Japan to produce soymilk and pack tofu in containers. In Singapore, tofu used to be considered a poor-man's food; if it was served more than

once every two weeks, family members might complain. But Unicurd repositioned tofu as a "nutritional food." The company markets its products mostly to the Japanese community of 20,000 people in Singapore.

There are 6 traditional soymilk makers in Singapore; the people like a product with a "strong beany flavor." Address: Managing Director, Unicurd Food Co. Pte Ltd., Blk. 6020 Ang Mo Kio Industrial Park 3, #01-154/156/158/160, Singapore 2056. Phone: 482-5454.

2215. Ontario Soybean Growers' Marketing Board. 1994. Ontario soybeans. P.O. Box 1199, Chatham, Ontario N7M 5L8, Canada. 7 p. Oct. Unpublished typescript.
• ***Summary:*** This is a compilation of 7 transparencies containing current statistics. 1. History. 2. Ontario soybeans: Production and disposition. Shows the number of tonnes produced, crushed, imported, and exported from 1944 to 1994. Production increase dramatically from 1,200,000 tonnes in 1989 to 2,100,000 tonnes in 1994. In 1989 about 95% of the soybeans produced were crushed, but in 1994 only about 55% were crushed. Exports rose more than 3-fold between 1989 and 1994, while imports decreased.

3. Ontario soybean exports: 1993–by destination. Of the 407,061 tonnes exported, 55.7% went to Europe, 24.4% went to Europe, 5.9% went to Japan, 5.7% to Hong Kong, 3.2% to Singapore, 2.5% to Malaysia, and the rest to Other.

4. Ontario's soybean industry consists of 20,000 soybean growers, 300 dealers, 2 crushers, 28 roasters/extruders, and many soyfoods manufacturers.

5. Soybean pricing. OSGMB has no price setting powers. A major U.S. port, Toledo, Ohio, is used as a price reference point for Ontario soybeans. 6. OSGMB Mission Statement. 7. Role of OSGMB. Address: P.O. Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

2216. Or, Gary. 1994. Our personal experiences with utilizing Ontario soybeans for Vitasoy production. Paper presented at Incoming Soybean Technical Mission. 12 p. 18 Oct. 1994 at Harrow Research Station, Harrow Ontario, Canada. [Eng]
• ***Summary:*** Contents: Company profile. Soymilk production. Our experience with Ontario soybean. Varieties to help Vitasoy International in future expansion.

The company was founded in 1940 by Mr. Guan, Mr. Chen, and Mr. Chu. In March 1994 Vitasoy shares were first listed on the Hong Kong Stock Exchange. Today Vitasoy exports to more than 20 countries via distributors in North America, Macao (Portuguese Macau, near Canton), Singapore, and China (PRC). The company's mission is to produce and promote high-quality, nutritious and wholesome products which can be purchased anywhere, at any time, at a price that everyone can afford."

The company makes two kinds of soymilk: Regular and organic. For regular soymilk, which contains 2% protein and 1% fat, Grade No. 1 Ontario soybeans are the first choice; more than 120 containers (mostly 20 tons each) were received from Jan. to Sept. 1994. No shipment was rejected. The current packaging is 45 kg gunny sacks [Note: Gunny, a term first used in 1711, is derived from the Hindi term *gani*. It is a coarse heavy fabric, usually of jute or hemp, used especially for bagging]. The soybeans are first ground into flour. A mild beany flavor is desired. For organic soymilk, which contains 3.5% protein, U.S. soybeans with OGBA [Organic Growers and Buyers Association] certification are used. The whole beans are ground to a slurry, and are not first ground into a flour. The fat content is 3.0% for regular and 1% for lite. Beany flavor is removed.

Vitasoy would like to buy high-protein, organically grown Ontario soybeans–ideally OGBA certified–but they are not readily available. Vitasoy is planning a franchising program. Address: Technical Research and Quality Assurance Manager, Vitasoy International Holdings Ltd., No. 1, Kin Wong Street, Tuen Mun, N.T., Hong Kong. Phone: 466 0333.

2217. Shurtleff, William. 1994. Report on soybean and soyfoods research trip to Ontario, Canada: 17-19 October. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549 USA. 21 p. Unpublished manuscript.
• ***Summary:*** Contents: 3-page program titled "Incoming Soybean Technical Mission." Oct. 17. Talk with Fred Brandenburg, executive director of OSGMB about food-grade Ontario soybeans exported to Asia. Canada is working to increase its sale of food-grade soybeans to Asia. Even though these soybeans are more expensive, they are of better quality and thus preferred. They are also very clean, since soyfoods makers want soybeans with little or no foreign matter. Most are not sold identity preserved, but they are large seeded, white hilum beans. Fred speaks of "crusher beans" and "food beans."

Oct. 18. Visit to Harrow Research Station, run by the Canadian federal government. (1) Talk by Michael Loh: Canada has 72% of the Singapore soybean market, 52% of the Hong Kong market, and 14% of the Malaysia market for soybeans imported for all purposes. Ontario's goal is to double exports by the year 2000. Their strategy is selling value-added products to niche markets. Food-grade soybeans now being developed in Japan include Enrei, Toyo Suzu, Toyo Masari, Otsura, and Kita Musume. (2) Talk by William Shurtleff on "Breeding Soybeans for Food Uses." (3) Presentation by Doug Jessop of the Food Processing Lab. at Harrow. He has been making and studying tofu there since 1983, and on a regular basis since 1984. He shows us his process, using lab equipment that cost about $15,000 not including the Instron system that measures texture. (4) Talk with transparencies by Dr. Dick Buzzell on breeding soybeans to make tofu. Harovinton gives the best tofu yield

of all the varieties developed in Canada. A soyfoods maker can either contract with farmers in advance to have soybeans grown for them, or buy the soybeans from traders after they are harvested. To take optimum advantage of a soybean for making tofu, you must know the protein content then add the appropriate amount of water. The more protein in the bean, the more water you must add to get the highest yield. Identity preservation (IP) costs more. The yields will be lower and you must contract for it in advance; a problem is how to deliver the beans year-round to the end user. (4) Talk by Dr. Ma of Central Food and Animal Research. His specialty is vegetable protein. He is collaborating with ProSoya to make soy protein isolates from soymilk since Russia wants to make its own isolates. The soybeans with the highest protein content (on a dry weight basis) are BARC-6 53.4%, Harovinton 45.5%, Enrei 45.0%. One Japanese mutant soybean has none of the three types of lipoxygenase. Lines that lack A-4 protein give firmer tofu. In isolines, everything is the same except for one trait.

Oct. 19. (1) Visit to OSGMB with Fred Brandenburg to hear presentation, see facilities and collect documents. It takes more solar energy to lay down oil in a soybean than protein. Thus after a hot, dry summer, Canadian soybeans contain more oil. Soybeans in hot, tropical countries near the equator also generally contain more oil. In 1985 Canada became a net exporter of soybeans. The cost of producing soybeans in Canada is about the same as in the USA, but the U.S. often ships full vessels of soybeans and is near oceans, whereas Ontario often ships containers (20 or 40 tons), either out the St. Lawrence Seaway or down the Mississippi River. Some agrochemicals that are legal in America are not legal in Canada. All agrochemicals must be licensed, as must some farmers. Mr. Goh says that Chinese believe white hilum soybeans contain more protein than other soybeans. (2) Visit to Canadian Grain Commission to learn how Canada inspects and exports soybeans. The closest that a full seagoing vessel can get to Ontario is Montreal (Quebec)–the last deep-water port up the St. Lawrence Seaway. In Canada, dockage (both big and tiny foreign matter) is removed from soybeans before foreign material is calculated. This makes Canadian soybean much cleaner than those from the USA. Address: Lafayette, California. Phone: 510-283-2991.

2218. Shurtleff, William. 1994. Breeding and marketing soybeans for food uses: A blueprint for changing our seed company's basic mission. Paper presented at A Symposium on Breeding Soybeans (for an Incoming Soybean Technical Mission). 9 p. 18 Oct. 1994 at Harrow Research Station, Harrow, Ontario, Canada. [1 ref]

• ***Summary:*** Contents: Introduction. Why our seed company must change. Why soybean breeders breed for farmers. Why soybean breeders have been slow to breed for food uses. The three categories of soyfoods products–from a breeder's viewpoint: Value added products, commodity + good theory + premium price, commodity + weak theory + no premium price. The size of the soyfoods market. Repositioning our company and taking advantage of our location in Canada. The theory behind our long-range plan: Information, specifications, research and development leading to scientific theory, and education. How we plan to implement and apply this theory: Hire a food scientist, develop a computerized database and a bibliographic database, buy a computer graphics program and a color printer, open new channels of communication with many soyfoods manufacturers, develop an ongoing an ongoing relationship with one large commercial soyfoods manufacturer, develop questions, hypotheses, correlations, and theories. Appendix 1. Questions concerning the theory linking soybean characteristics with soyfoods properties. Appendix 2. Soybeans for soyfoods: Computer data entry screen. Appendix 3. What is the size of the market for soybeans for food use? Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Phone: 510-283-2991.

2219. **Product Name:** Veggie Pepperoni (Meatless). Renamed Veggie Pizza Pepperoni by Oct. 1997.
**Manufacturer's Name:** Yves Veggie Cuisine.
**Manufacturer's Address:** 1138 East Georgia Street, Vancouver, BC, V6A 2A8, Canada. Phone: 604-251-1345.
**Date of Introduction:** 1994. October.
**Ingredients:** Incl. soy protein isolate, wheat protein, tofu, and soy fiber.
**Wt/Vol., Packaging, Price:** 155 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** Spot in Soyafoods (ASA, Europe). 1995. Spring. p. 5. "Veggie Pepperoni–winner of Sial d'Or." This product won a Sial d'Or prize in the delicatessen category at the Oct. 1994 Sial exhibition in Paris. The product was also selected as winner of the Canadian Grand Prix Best New Product Award in the Diet and Biological Foods category. The product is high in protein and low in fat.

Spot in Vegetarian Journal. 1997. Nov/Dec. p. 15. "Veggie Pepperoni. Yves Veggie Cuisine has introduced Veggie Pizza Pepperoni, a fat-free vegetarian pepperoni topping for pizzas." The company is now located at Delta (Vancouver), B.C., Canada V3M 6R9. Phone: 604-525-1345.

2220. Cloud, Jon. 1994. Re: Work with organic farming in Canada. Letters to William Shurtleff at Soyfoods Center, Nov. 14 and Dec. 27–in reply to inquiry. 2 p. and 1 p. Typed, with signature on letterhead.

• ***Summary:*** To the best of John's knowledge, the first soybeans grown organically in Canada (after 1960) were produced in 1974 in Wainfleet, Ontario, under contract with John. They started growing organically because John was

willing to "issue them contracts guaranteeing floor prices and ready sales." "Through extensive field work with these and other growers, the quality and field yield of organic soybeans have steadily increased." John now works in a cooperative arrangement with W.G. Thompson & Sons Ltd. in Blenhein, Ontario, Canada. This arrangement "allows us to secure soybeans at harvest, clean them, and store them in facilities that maintain that quality. I'm still training farmers in organic methods."

"I'm no longer at Soy City Foods. I sold my interest there on 1 Jan. 1994 and now I am gratefully involved in taking the industry to its next level of expansion with W.G. Thompson & Sons.

"I began working with Thompson in May 1994. We have a partnership where they are responsible for marketing the complete line of organic commodities. My responsibility is the operational grower/production side of the business. I train farmers in growing techniques so that the organic acreage can be greatly expanded.

"Presently we have about 295 growers on our mailing list. Approximately 50% of these growers produce organic soybeans, and about 40-50 of them produce them in any one year. However many of these growers have limited soybean sales due to their dairy operations and/or position in the 7-year crop rotation. In Ontario there are over 1,500 farmers growing crops organically but mostly on mixed farms [with non-organic crops]. Probably no more than 60-70 of these grow soybeans organically. Due to crop rotations, the acreage in organic soybeans fluctuates dramatically from year to year; anywhere from 1,000 to 2,500 acres of organic soybeans would be under production in any given year. This means that the bulk of their commodities are going for beef and dairy operations. About one fourth of the 1,500 are cash croppers. The number of farmers has not changed appreciably in the past four years but the size of the farms has. The smaller farms have opted for market garden operations while the larger farms are more efficient at cash cropping–things like soybeans, wheat, and spelt.

"At present we market a full line of organic commodities including soybeans which we ship globally. Other organic crops include spelt, soft white winter wheat, hard red spring wheat, rye, buckwheat, barley, corn, and sunflowers. When you take into consideration that soybeans constitute only one of the commodities in the rotation, you can see that the tonnage is greatly expanded by handling all of the commodities. It is our hope that we will be able to move quickly 4,000 to 5,000 acres of soybeans. The vast majority of our current soybeans are high protein for tofu or soymilk.

"Ontario sells few organic soybeans to East Asia because the bulk of our production has historically been shipped to Europe. That has changed this year with Japan receiving its first shipments. Other Pacific Rim countries started receiving minimal amounts of organic soybeans in 1992 and 1993.

"Although I was forced to leave the Ontario Oil Protein Seed Crop Committee because of excessive work load, I still sit as an ad hoc member of that committee in a technical assistance capacity to the plant breeders in designing higher quality soybeans. My two latest projects focus on soluble protein increases and elimination of trypsin inhibitors in soybeans."

John encloses a leaflet titled "Training in organic production techniques: Workshop schedule for the winter of 1994-1995." There are two 4-day workshops each month, one in Blenheim and one in Toronto, Ontario. Each workshop costs $25.

Update: 1995 May 17. Acreage of organic soybeans in Ontario is up about 300% over last year and acreage for all organically grown crops in Ontario is up about 100%. John contracts 75% or more of the organic acreage in Ontario. One crop that is rapidly expanding is spelt. It has a better flavor and protein content than typical wheat, and it lacks one of the glutens to which some people are allergic.

Update: 1999 March 20. Talk with an associate of W.G. Thompson. Jon Cloud now has a very bad reputation with at least one manager at W.G. Thompson. According to this manager, Cloud misrepresented his relationship with the company and did some unscrupulous things, then disappeared leaving some unpaid debts. Address: Cloud Mountain Inc., 342 Indian Rd. Cres., Toronto, ONT M6P 2H1 Canada. Phone: (416) 762-0940.

2221. Gupta, Raj; Daller, Frank. 1994. Update on ProSoya Inc. and the SoyaCow Centre (Interview). *SoyaScan Notes.* Nov. 21. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** ProSoya Inc. (named ProSoya Foods International until late 1993) is the company that developed and owns SoyaCow, which is a machine that makes soymilk. The name SoyaCow was intended originally for smaller machines for developing countries, but now it is used also for the larger, more expensive systems.

In 1985 ProSoya had no manufacturing capability, so Raj talked with APV about developing equipment for ProSoya. APV did some research and development work for ProSoya but no money changed hands. ProSoya was considering giving APV a license to manufacture the machine, but APV found eventually that there are not many companies in the soyfoods market that are big enough to afford APV equipment, and most who could afford a large system might buy it from STS, which APV acquired in 1986. STS also looked at making the SoyaCow, but decided that the market was too small. APV has never owned ProSoya, and ProSoya never licensed any technology or equipment to APV.

The hard part was finding the right people. Once ProSoya found the right people, they chipped in some money, got some bank financing, and some small money from some shareholders. Only 15% of the company is owned by outsiders. So ProSoya is a corporation with about 8 shareholders, of which 4 are principal shareholders; the rest are relatives, accountants, etc. Raj still has the controlling interest. Frank Daller has raised all the outside capital within the last 1-2 years but most of it came in early in 1994. This has allowed ProSoya to construct a building where they do final manual assembly of SoyaCows, to publish a newsletter, and to market its SoyaCow very effectively. Most of the new funds have been used to build this assembly building, which does not have an assembly line and does not manufacture any of the SoyaCow's component 200 parts; they are custom fabricated by various other companies. ProSoya has 15-30 SoyaCows made at a time–built to order; each takes only 2-3 hours to assemble, and they inventory only a few at a time. In the building there is also a pilot plant, where potential customers can see how the SoyaCow works and taste the finished product.

ProSoya has not gone to any large companies for capital, and has not had to made any compromises as to its goals. In fact, they have been very selective about bringing in capital, desiring only investors who share Raj and Frank's views and goals. Frank invested money, and they have brought in outside money from only one other significant source, which is their West Coast licensee. This is a new entity in Vancouver, British Columbia, named Pacific ProSoya, which has acquired the license to produce soymilk in bulk, using ProSoya technology, for the western part of Canada and the northwest USA. The milk, made in a plant which ProSoya is building for them, will be sold to food processors. It is sort of joint venture and licensing deal. ProSoya holds equity in their company and they hold equity on ProSoya. The relationship began about 2 months ago, though they have been discussing this for the last 9 months.

Another new development is that ProSoya in Ottawa is starting to make bulk soymilk for food processors. They will be serving cow's milk dairies which will be test marketing Pure-Pak cartons of soymilk, as well as an ice cream company and a yogurt company and a Tetra Pack filler.

ProSoya is aggressively looking for a company to manufacture their SoyaCow assembly-line style in East Asia (especially in China, Taiwan, or Korea) for about half the price they can make it for in Canada. They see a large potential market in China and throughout the less developed countries if they can reduce the price to end users.

How much does a SoyaCow cost? The SC-20, the smallest machine which makes 20 liters of soymilk per batch, is extremely compact, uses a patented airless cold-grind process to produce a very good-tasting soymilk, and retails for US$7,000. The SC-100, which can produces 100 liters per batch and can make up to 400 to 500 liters/hour, retails for a minimum of US$175,000, not including the boiler, chiller, and clean-in-place system. They are about to introduce a continuous-process machine.

People learn about the SoyaCow mostly through word of mouth and from the *SoyaCow Newsletter,* which is written mostly by Raj and Frank. It goes out to several hundred people.

The Russians have translated Mark Messina's book, *The Simple Soybean and Your Health* into Russian. They want to print 10,000 copies. Address: The SoyaCow Centre, 9 Veery Lane, Ottawa, ONT, K1J 7W7, Canada. Phone: 613-745-9115.

2222. Mercado, Sam. 1994. Re: The Plenty Canada soy program in El Salvador. Letter to Mr. Frank Daller, ProSoya Foods International Inc., 5350 Canatek Road, Ottawa, ONT K1J 9C9 Canada, Nov. 25. 4 p. Typed, with signature on letterhead.

• ***Summary:*** The SoyaCow project is part of Plenty Canada's Integrated Rural Development Program (CIDEP) in El Salvador. An evaluation made by CIDA in March 1994 showed the following achievements: 1. A small soya production has been established in the municipality of Mejicanos. It is equipped with two SoyaCows, each producing more than 130 liters of soymilk a day. More than 500 children in three kindergarten schools receive soymilk and soy ice cream as part of the breakfast program. The okara (solids) is used as a raw material in making tortillas; in the future the okara will also be used in making *pupusas,* a very popular staple food in El Salvador.

2. One person in El Salvador was trained in the operation and maintenance of the SoyaCow. This person trains other Salvadorian trainees. 3. This project has created five permanent and several other part-time jobs in the poor neighborhood of the municipality of Mejicanos. It has also provided the local staff of CIDEP and the child care center hands-on experience in organizing and operating a small enterprise.

Demonstrations and extension visits, though on a very limited scale, helped make local people aware of the benefits of soyfoods. CIDEP received several requests from women's groups and individuals to help them with training in processing and to set up related small income-generating activities. Address: Central America Program Officer, Plenty Canada, Lanark, ONT Canada K0G 1KO. Phone: (613) 278-2215.

2223. Voldeng, Harvey D. 1994. Dr. Sven Holmberg and breeding short-season soybeans (Interview). *SoyaScan Notes.* Nov. 29. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Dr. Voldeng said in March 1993: "When you look into Dr. Holmberg's work, it was remarkable. He was a very, very good soybean breeder. Nobody in Europe, even up until now, has conducted breeding programs on the scale and with the number of crosses that he did." He got big results on a small budget, with funding coming mostly from a small private seed company and perhaps some from the Swedish government.

Dr. Holmberg's program at Fiskeby was closed down after his death in Nov. 1981 and some of the work was taken up by a young lad in southern Sweden. Dr. Voldeng has quite a bit of correspondence, pedigree lists, and other documents on file from Dr. Holmberg, and he will look there for details and to see if Holmberg's soybeans were tested in other northern European countries, especially Norway, Finland, Denmark, Ireland, or Iceland. [Note: Ireland is located the furthest south of these countries, on about the same latitude as northern Germany, and south of the southern tip of Sweden].

The soybean breeder before Dr. Voldeng was Dr. Lorne Donovan, who was the successor to Dr. Dimmock. In the mid- or early 1960s, Holmberg worked his way over on a cattle ship from Norway one year (he obviously was paying his own way), and spent some time with Dr. Donovan in Canada. Dr. Voldeng met Dr. Holmberg once, in about 1978-1980, when he was still some fairly active. "He went out to the field with me. He had fairly severe arthritis, so he had to walk with a cane. His sister lived with him, and we all drove out to the field. We walked around the plots. He had a very good program, though it was not that large. In Eastern European countries, such as Poland, they had programs and 100 times more financial support than he had, but they made practically no crosses. Holmberg made hundreds of crosses, and that was not easy in the climate and latitude of Fiskeby. He was a remarkably good soybean breeder, there is no question about that." Dr. Voldeng does not know what his academic training was. He heard that before World War II, the Swedish government could see that a problem was coming, that they could be blockaded for vegetable oils. So they paid for his trip to Hokkaido, Japan, and the Kurile Islands to collect soybeans. "He told me, 'When I got to those places I could see birch trees and it looked just like Sweden. So I knew that if I found soybeans there, they could be adapted to Sweden.' He was right, but it took a lot of work to adapt them. He knew exactly what he was looking for.

Dr. Voldeng thinks that. Dr. Holmberg's program is no longer active. "It was more a labor of love that his father had started and he continued. Eventually they were purchased by one of the big plant breeding companies in Scandinavia–probably Hilleshög (which focused on breeding hybrid sugar beets), when Dr. Sven Holmberg was in his later years; he supervised the transfer. Hilleshög was later sold to Volvo, and then to Syngenta AB–so it seems unlikely that any archives or photos survive. He made little or no money from his soybean work though he has contributed immensely to short-season soybeans worldwide.

Note: A letter from the Fiskeby Board AB in June 1994 states that Dr. Holmberg's Institute, which used to be in Fiskeby, Norrköping, Sweden, no longer exists. Address: Agriculture Canada, Central Experimental Farm (CEF), Building #110, Ottawa, ONT K1A 0C6, Canada. Phone: 613-995-3700 x 7653.

2224. Archer Daniels Midland Co. 1994. First quarter report to shareholders, and a report on the 71st Annual Shareholders Meeting. Box 1470, Decatur, IL 62525. 16 p. 20 x 9 cm.

• ***Summary:*** Comments by president James R. Randall. ADM is a growth company that continues to grow in three basic ways. First, by continuing to expand the basic businesses: crushing, refining, milling, etc. Second, to grow vertically and upgrade basic products into higher margin items. Central Soya's feed division was purchased along with a worldwide network of premix plants to give ADM excellent distribution of its amino acids and vitamins for animal feeds. By the end of 1995, ADM will be producing all three of the vitamins known as antioxidants. "Our soy protein businesses also continue to grow. Our European concentrate plant is now at full capacity and is being expanded. Our U.S. isolate and concentrate business is well ahead of previous years." Pillsbury's sales of ADM's vegeburgers are "up nearly 900 percent over a year ago. Our third growth area is to grow internationally. There are 94 million new people added to the face of the globe annually and feeding people is our business." These people are being added in "Asia, Africa, Central and South America, places where we have little or no presence, and we need to be there. In the past year we have formed partnerships and have plants in Turkey, Greece, Bulgaria, Hungary, and Czechoslovakia in Eastern Europe. ADM is forming new alliances in Asia.

Comments by Michael Andreas, vice chairman of the board and executive vice president. There is no free trade in today's world. "Twenty years ago soybean farmers in the U.S. couldn't agree on a program for soybeans because the cost to produce them varied so widely from north to south. So they opted for so-called free trade with a low loan rate as a safety net. It all sounded pretty good. Over the last 15 years, however, I observed the following. Ten million acres of soybeans disappeared from the U.S., while areas in Argentina and Brazil increased 14 million acres where land was cheaper and subsidized credits were available. An additional 18.7 million oilseed acres were planted in Canada and Europe, again with heavy subsidies. Twenty-two soybean factories [crushing plants] were closed in our country, while fifty sprung up in South America and Europe. Our share of the world market in soybean products

was cut in half. In fact, over 20,000 soybean farmers left the business, and 50,000 jobs were lost at home. And you know we still have the same program today.

"Let's look at Japan. They are truly the masters of managed trade. After the war, Japan put an extremely high tariff on imported vegetable oil but none on raw materials like soybeans and canola, so they could create jobs at home. Factories sprung up in the '50s and '60s like wildfire when they set their systems in place. Canada responded by growing more and more oilseeds and subsidizing exports with cheap freight to the ports. Canada became a colony again. They got no factories, no jobs. Why not?

"Japan had all the factories because they could pay a premium for raw materials (in this case subsidized raw materials), run their factories, and charge the consumers double the market for their products. Taxes on the profits were collected by the government and used to help subsidize automobile exports. Sound complicated? As I said, this was managed trade, and it worked like a charm.

"And don't think for a minute that China hasn't learned from these tricks of the trade. They're putting the same systems in place as fast as they can."

Comments by Dwayne O. Andreas, chairman of the board and chief executive. He discusses the many accomplishments of the Clinton administration, including opening up trade with China. "The second thing he did that is absolutely super for agriculture and ADM is that he got NAFTA through the Congress over the opposition of his labor constituency, one of the greatest achievements for trade of this century. Our exports to Mexico have tripled just since NAFTA, and they are going to triple again." Address: Decatur, Illinois.

2225. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada).*1994. What's new in exports? 7(3):4. Nov.

• ***Summary:*** "The Canadian 1993 crop year saw major export soybean increases in many areas..." A pie chart shows 1993 Canadian exports by destination region and country. In descending order of tonnage, they are: Western Europe 226,733 metric tons (tonnes), USA 99,401, Japan 24,185, Hong Kong 23,286, Singapore 12,930, Malaysia 10,362.

2226. IITA. 1994. Annual report 1993. Ibadan, Nigeria: International Institute of Tropical Agriculture (IITA). 65 p. 28 cm.

• ***Summary:*** Contents: Director General's report. Research perspectives. Resource and crop management. Crop improvement. Plant health management. International cooperation. For the record.

IITA experienced funding cutbacks in 1993 and in 3 of the last 5 years, but in 1993 still had core funding of US$20.8 million and additional Special Project Funding of US$13,267,000, totaling $34,086,000. IITA is actively involved in environmental work, trying to achieve agroecological sustainability, using integrated pest management and other techniques. A color map (p. 9) shows agroecological zones of humid and subhumid tropical Africa. The four main zones are: Arid and semi-arid lands, mid-altitude savanna and woodlands, moist savanna (good for soybeans and other legumes), and humid forest.

In West Africa, for all crops, population-driven agricultural systems occupy 66.5% of the land area, while market-driven systems occupy the other 33.5%. Three countries–Nigeria (40%), Côte d'Ivoire (28%), and Ghana (12%)–together account for 80% of the area in West Africa where the systems are market driven. Kudzu *(Pueraria)* is being tested extensively with good results in fallow systems for sustainable farming. Earthworm cast production is highest under kudzu live mulch.

The section on "Crop Improvement Highlights 1993" (p. 21-24) discusses: Seed of IITA soybean varieties were available in the commercial sector, sold by Pioneer Hi-Bred and UAC in their catalogs. The effectiveness of promiscuous nodulation of soybean in farmers' fields was confirmed in 1993. Soybean in Nigeria: As crop's commercial success grows, researchers address linked problems. Ghana and Malawi are promoting soybean production. From 1987 to 1993 the soybean utilization project has been funded by the International Development Research Centre (IDRC) of Canada and the Japan International Cooperation Agency (JICA). In Feb. 1991, the project identified 21 companies in Nigeria which used soybean as an ingredients in their products or projects. By 1993 that number had jumped to 50. "In July 1993, IITA held a workshop of small-scale and industrial soybean processors, which brought together the whole spectrum of producers from the cottage-industry to large-scale levels, as well as soybean growers." Production and marketing information gathered by the IDRC project was reviewed. Producers and processors exchanged views on development of soy-based food products and the associated equipment and machinery for their manufacture." Today the demand for soybeans in Nigeria exceeds the supply.

In 1992 only 4.3% of IITA's core budget went to cowpeas and soybeans, decreasing to 3.1% in 1993. Page 50 shows the 33 main IITA donors in 1993. Those giving more than US$1 million are: USAID ($9,727,000), World Bank ($4,200,000), Japan ($3,584,000), Canada ($1,448,000), and Netherlands ($1,400,000).

During 1993/94 IITA improved soybean germplasm was released in Ghana, Nigeria, and Zaire. Address: PMB 5320, Oyo Road, Ibadan, Nigeria.

2227. **Product Name:** Veggie Back Bacon.
**Manufacturer's Name:** Yves Veggie Cuisine.

**Manufacturer's Address:** 1138 East Georgia Street, Vancouver V6A 2A8, B.C., Canada. Phone: 604-251-1345.
**Date of Introduction:** 1994. November.
**How Stored:** Frozen.
**New Product–Documentation:** Spot in Vegetarian Journal. 1994. Nov/Dec. p. 9. This delicious, vegan, fat-free product will soon be appearing in natural food stores. Use in veggie BLT or club sandwiches.

2228. Carlsen, Clifford. 1994. Tofu maker sprouts new sales strategy for offshoot. *San Francisco Business Times.* Dec. 15.
• ***Summary:*** Vitasoy USA of Brisbane, California, now owns Azumaya and Nasoya, each a major tofu manufacturer. The company has tofu sales that are now expanding at a rate of nearly 10% a year in supermarkets, natural food stores, and ethnic grocery stores. The company has extremely strong distribution to all three markets, according to Jan Remak, Vitasoy's director of marketing. Remak predicts total sales of $28 million in the fiscal year ending March 1995; tofu will account for about one-third of this, or about $9.3 million. Vitasoy's latest strategy is to try to gain dominance in ethnic groceries by taking advantage of the Vitasoy brand name, which is as well known by Asian-Americans as Coca-Cola or Levi Strauss are in the mass market. Vitasoy tofu is produced and packaged at the Azumaya plant in San Francisco, which has a capacity of 3.5 tons a day. Vitasoy is already distributing Vitasoy Tofu to Asian grocers in San Francisco, but it plans to eventually distribute that brand to each of the six major Asian-American markets in North America: San Francisco, Los Angeles, Vancouver [British Columbia], New York, Toronto [Ontario], and Houston [Texas]. Address: California.

2229. Cloud, Jon. 1994. Re: Changes at Soy City Foods in Toronto. Letter to William Shurtleff at Soyfoods Center, Dec. 27–in reply to inquiry. 2 p.
• ***Summary:*** "I'm no longer at Soy City Foods. I sold my interest there on 1 Jan. 1994. It is now a corporate structure, which apportions division of labor. I have no idea who is the person in charge there, but I know they are out of the commodity business. Tofu production has been reduced to one half of the production levels when I was running the company. Wholesale and retail sales in the U.S. have been curtailed. From my perspective it seems to be dying, or certainly shrinking. I am gratefully involved in taking the industry to its next level of expansion with W.G. Thompson." Address: Cloud Mountain Inc., 342 Indian Rd. Cres., Toronto, ONT M6P 2H1 Canada. Phone: (416) 762-0940.

2230. Ontario Soybean Growers' Marketing Board. 1994. Annual report. Box 1199, Chatham, ONT N7M 5L8, Canada. 27 p. Dec. 28 cm.
• ***Summary:*** This is a report for the year 1994. Contents: Mission statement. Chairman's message (Ron MacDougall). Secretary manager's message (Fred Brandenburg, Dec. 1994). OSGMB summary of major activities in 1994. Auditor's report and balance sheet. 1994 soybean & research funding. Ontario soybeans–supply and demand, 1991-1995. Soybeans: Area, production and farm value, by county, 1993, with provincial totals [including county and district totals], 1987-1993. Ontario marketings, 1991-93. Ontario soybeans: Production, crushings, imports, exports, 1980-1994. 1993 crop year marketings by county. Ontario soybean production history, 1942-1994. Ontario soybean exports by destination in metric tons, 1990-1994. Soybean meal: Canadian imports and exports, 1981-1993. Soybean oil: Canadian imports and exports, 1981-1993. Quality of the 1993 soybean crop by county (in terms of mean oil content and mean protein content). Cash prices for Ontario soybeans (1991-1995). Ontario soybeans basis values (cents over futures; adjusted producer basis, and raw unadjusted basis). Soybean supply and demand, 1991-1995: USA, world. OSGMB appointments for 1994 (officers and committees). 1994 district committee members of soybean board.

Ontario soybean exports have risen from 199,636 tonnes in 1990/91 to 487,395 tonnes in 1993/94. They are increasing at a compounded rate of 35% a year for a 2.4-fold increase in 3 years. Address: Chatham, ONT, Canada. Phone: 519-352-7730.

2231. **Product Name:** Soya-Cow Soymilk (Bulk).
**Manufacturer's Name:** ProSoya International.
**Manufacturer's Address:** The SoyaCow Centre, 9 Veery Lane, Ottawa, ONT, K1J 7W7, Canada. Phone: 613-745-9115.
**Date of Introduction:** 1994. December.
**New Product–Documentation:** Talk with Raj Gupta and Frank Daller of ProSoya in Ottawa, Ontario, Canada. 1995. Nov. 21. Another new development is that ProSoya in Ottawa is starting to make bulk soymilk for food processors. They will be serving cow's milk dairies which will be test marketing Pure-Pak cartons of soymilk.

Talk with Frank Daller of ProSoya. 1995. March 7. This products was first sold commercially in bulk in Dec. 1994. It was sold to an ice cream company.

2232. *SoyaCow Newsletter (Ottawa, Canada).*1994. New license for West Coast plant. 3(4):1. Oct/Dec.
• ***Summary:*** "A Western Canadian group has formed Pacific ProSoya Foods Inc. to act as a licensed producer of soymilk using the SoyaCow process." In March, 1995, a SoyaCow SC2000 (which can produce 2,000+ liters/hour in a continuous process) is slated for installation at Pacific ProSoya's facility in Langley, British Columbia, Canada.

This plant will ship bulk soymilk to British Columbia, Alberta, Oregon, and Washington.

Note: Three SC2000 systems have been ordered and will be installed in (1) British Columbia, (2) Russia, and (3) at the ProSoya test plant in Ottawa.

Talk with George Conquergood of International ProSoya Corporation (IPC). 1999. May 10. The SC-2000 was ProSoya's first continuous-process soymilk cooker. Development started in early 1993. Raj designed it and ProSoya and George debugged it and got it to work; it didn't work when it was first installed in the British Columbia plant.

2233. *SoyaCow Newsletter (Ottawa, Canada).*1994. New SC100 system successfully tested. 3(4):1-2. Oct/Dec.
• ***Summary:*** "In November, the new Ottawa facility of ProSoya Inc. successfully tested the latest generation of the SoyaCow SC100." It produces 500 liters/hour of soymilk and can be upgraded to the continuous process SC2000. A photo shows the SoyaCow SC100 Plant at ProSoya's facility in Ottawa.

2234. *SoyaCow Newsletter (Ottawa, Canada).*1994. Gelato Fresco receives first bulk soymilk shipment. 3(4):2. Oct/Dec.
• ***Summary:*** In late December Gelato Fresco, a maker of premium dairy and of soymilk ice cream in Toronto, was the first to receive a 1,000-liter test shipment of the bulk soymilk produced by the new SoyaCow plant in Ottawa. For the last year Gelato Fresco has used (and over-used) its own SoyaCow SC20 which could produce only 20 liters/hour. Gelato Fresco has successfully test marketed a premium line of soymilk-based frozen desserts. Orders are also coming in from a distributor in Wisconsin.

2235. *SoyaCow Newsletter (Ottawa, Canada).*1994. Russian program orders more SC-20s. 3(4):2. Oct/Dec.
• ***Summary:*** The Russian Soybean Association (ASSOY) has ordered 20 more tabletop SoyaCow SC20 systems to add to the ten similar systems they have already acquired during the past year. "ASSOY's soyfood program, which is based exclusively on the SoyaCow technology, is developing with unusual speed. Soymilk derived yogurt, tofu, mayonnaise, drinks, and ice cream as well as baked goods made using 'okara' soy-fibre, are all made in pilot or cottage industry production."

2236. **Product Name:** Soymilk (Chocolate-Peanut Butter).
**Manufacturer's Name:** Sweet Carrot Café.
**Manufacturer's Address:** 702 14th St. East, Saskatoon, SK, S7N 0P7 Canada.
**Date of Introduction:** 1994.
**Wt/Vol., Packaging, Price:** Bottle.
**New Product–Documentation:** Talk with George Conquergood of International ProSoya Corporation (IPC). 1999. April 21. George introduced this, his last flavor of bottled soymilk, sometime in 1994. The Chocolate-Peanut Butter was a "power drink" that–along with the Soy Nog–people loved. Both flavors especially popular with cyclists. George used to keep a refrigerator at a cycle shop stocked with product. These guys would come back from their bicycle trips to the cycle shop and down a liter of soymilk.

2237. Grogan, Bryanna Clark. 1994. The (almost) no-fat cookbook: Everyday vegetarian recipes. Summertown, Tennessee: The Book Publishing Co. 192 p. Index. 21 cm. [10 ref]
• ***Summary:*** This low-fat vegan cookbook contains a wealth of soy-related recipes, including 27 recipes that call for tofu. Address: Denman Island, east of Vancouver, British Columbia, Canada.

2238. Kritchevsky, David; Carroll, Kenneth K. eds. 1994. Nutrition and disease update: Heart disease. Champaign, Illinois: AOCS Press (American Oil Chemists' Society). vii + 279 p. No index. 26 cm.
• ***Summary:*** Contents: 1. Omega-3 fatty acids and heart disease. 2. Sodium and hypertension. 3. Dietary fiber and cardiovascular disease. 4. Lipids and cardiovascular disease.

This report, originally prepared in 1991 by the Life Sciences Research Office (LSRO) of the Federation of American Societies for Experimental Biology (FASEB) for the Food and Drug Administration, has been updated and reviews the most recent literature in this area. Address: 1. Wistar Inst., Philadelphia, Pennsylvania; 2. Univ. of Western Ontario, London, ONT, Canada.

2239. Ontario Oil & Protein Seed Crop Committee. 1994. Ontario soybean variety trials (Leaflet). Ontario, Canada. 9 panels. 22 x 10 cm.
• ***Summary:*** Rates soybean varieties and gives detailed agronomic data for four different heat unit areas: 2500-2800 heat units, 2700-2900 heat units, 2900-3300 heat units, 3300-3500 heat units (the furthest south; average yield: 3.26 tonnes/hectare). Address: Ontario, Canada.

2240. *Ontario Soybean Growers' Marketing Board Newsletter.*1994. Soybean feeding on the farm. 12 p. Supplement 1993/94.
• ***Summary:*** Contents: Introduction (raw soybeans, importance of proper and optimal heating, under-heated soybeans, over-heated soybeans). Common methods of heat processing: Roasting "moldy or musty" grain, extrusion, micronization, microwaving. Dairy and beef cattle: Whole roasted soybeans for dairy, roasted soybeans for beef. Poultry: Laying hens, Kunitz-free soybeans [trypsin inhibitor], broilers and turkeys, poultry meat, fat and carcass

characteristics. Swine: Seasonal effects, Kunitz-free soybeans for feeding swine, high protein soybeans for feeding swine.

A table shows: Ontario heat processors: Extruders, retailers, roasters, custom roasters. Equipment. Premix suppliers. Others. Maritimes. Quebec heat processors: Extruders, micronization, roasters.

Illustrations show the various types of animals fed soybeans. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2241. Ontario Soybean Growers' Marketing Board. 1994. New uses for soybeans (Leaflet). Ontario, Canada. 2 p. Undated. 28 cm.
• ***Summary:*** Contents: Soy diesel. Premium building materials (such as Environ). Industrial solvents. Anti-chronic disease agent (isoflavones and protease inhibitors from tofu, miso, and tempeh). Road dust suppressants. Asphalt and concrete release agents. Lubricants and hydraulic fluids. Biodegradable plastic utensils. Soy oil based inks. Soy textile fibres (can be used for erosion control on landscape projects, for peat pots, fishing nets, and "soy silk" in clothing). Soy adhesives (for plywood products and composites). Address: Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

2242. Asahi Food Processing Co. 1994? Soybean materials and tofu quality: Soybean use at Asahi. Gyoda-shi, Saitama-ken, Japan. 13 p. 28 cm. Undated. [Eng]
• ***Summary:*** This very interesting report was produced by the Tofu Research Team in the company's Foods Laboratory. It shows how a top Japanese tofu manufacturer evaluates soybeans and processes for making tofu. Each year Asahi uses 4,900 tonnes (metric tons) of soybeans, of which 3,000 tonnes (61.2%) are IOM from the USA and 1,900 tonnes (38.8%) are grown in Japan. Contents: Flow sheet for making soymilk and tofu.

Chemical composition and viscosity of soymilk and hardness of tofu, made using 26 different soybean varieties and 3 coagulants–GDL, calcium sulfate, and magnesium chloride. The main soybeans are Enrei, Toyosuzu, Suzuyutaka, Nanbushirome, Tachinagaha, Yamabe daizu (+ or -), IOM, Vinton, Beeson, Kunitz, Zane, Forrest, 9 experimental Canadian soybeans bred at Harrow [Ontario], Best One (Harrovinton [Harovinton]), plus soybeans from Nepal, Celebes, and Chiang Mai.

Chemical composition of 26 soybean varieties and subunit composition of their protein (11S, 7S, etc.). Composition of other soybeans tested: Vinton organic, Tachiyutaka, Tamahomare, Fukuyutaka, Murayutaka, Raisen, Nakasennari, etc. Variables affecting tofu breakage, and tofu compression. Graph showing effect of A-4 subunit on viscosity change of soymilk after addition of magnesium chloride. Graph showing viscosity curves after addition of magnesium chloride coagulant (0.2%) to soymilk derived from 8 different soybean varieties (Note: Enrei gives the lowest viscosity and Vinton the highest). Dendrogram of cluster analysis on principal component score for Japanese soybean cultivars (Best suited for tofu are Enrei, Toyosuzu, Fukuyutaka, Shirosennari). Note: *Webster's Dictionary* defines dendrogram (a term first used in about 1953) as "a branching diagram representing a hierarchy of categories based on degree of similarity or number of shared characteristics esp. in biological taxonomy."

Three dimension chart of factor loading. Chart (2 pages) of variables affecting tofu quality: Vertical columns: Deliciousness (Color, taste, flavor, texture), nutrition, sanitation, cost. Horizontal columns: Points/characteristics, soybeans, extraction of soymilk, coagulation operation to make tofu, viewpoints (notes), Enrei, IOM. Address: 2-17-8 Mochida, Gyoda-shi, Saitama-ken, Japan.

2243. **Product Name:** Tofu, Soymilk, Dried Tofu Curds, and Veggie Burgers.
**Manufacturer's Name:** Harcan Kingsoya Co. Ltd.
**Manufacturer's Address:** 33 Casebridge Court, Units 5&6, Scarborough, ONT M1B 3J5, Canada. Phone: (416) 283-8328.
**Date of Introduction:** 1994?
**New Product–Documentation:** Talk with Duff MacKinnon of the Ontario Ministry of Agriculture and Food in Guelph. 1995. March 6. Harcan makes tofu, soymilk, dried tofu curds, and veggie burgers. They have a very small plant. One partner, from mainland China, speaks excellent English. The other two partners are Canadian.

2244. Davis, Bob. 1995. New developments at Sharon's Finest and with his work (Interview). *SoyaScan Notes.* Jan. 17. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Richard Rose's flagship line of soy-based cheese alternatives from Sharon's Finest (Santa Rosa, California) has been off the market for the last 3 months. This happened because Richard changed manufacturers, from Savoldi Cheese Co. in Pennsylvania, to Whitehall in Wisconsin. (Note: Savoldi was located near the Galaxy Cheese Co. plant in New Castle, Pennsylvania.) Richard's cash flow is now zero. Bob feels the products from the new manufacturer are not as good as those they were meant to replace. Hemparella is made in Vancouver, BC.

Bob is now off he payroll and looking for work. He must stay in his present location, where his two children attend a Waldorf school. He would like to earn $65,000 per year, as he has been for the past two years; for the 5-6 years before that he was earning $55,000 per year.

Talk with Richard Rose. 1995. Feb. 22. A big dairy milk co-operative bought the company that was making and packing cheese alternatives for Sharon's Finest. They didn't want to continue making these cheese alternatives, and they

didn't give Richard any advance notice that they were stopping production of his products, so he had to scramble to find a new manufacturer. Now all is back to normal.

VeganRella did not sell as well as expected. It is still on the market but the product taught Richard that people don't really care if cheese alternatives contain casein. Address: 3812 E. Goldfinch Lane, Clinton, Washington 98236. Phone: 206-341-1259.

2245. **Product Name:** Fungle's Veggie Franks n' Beans (Fat Free); Veggie & Bean Burritos; Spaghetti & Veggie Balls.
**Manufacturer's Name:** Fungle's Fun Foods.
**Manufacturer's Address:** 16830 Ventura Blvd., Suite 326, Encino, CA 91436. Phone: 1-800-386-4537. 310-374-6893.
**Date of Introduction:** 1995. January.
**Wt/Vol., Packaging, Price:** 8 oz plastic tub.
**How Stored:** Frozen.
**New Product–Documentation:** Spot in Record Review (Abbotsford, Wisconsin). 1995, Jan. 25. Spot in Vegetarian Times. 1995. March. p. 14. "Frozen, fast and fun." The company makes 3 frozen vegetarian entrees in the line "Fungle's All Natural Meals for Kids.": Veggie Franks 'n Beans (which have soy franks, made by Yves), Veggie & Bean Burritos (contain soy cheese and soy oil), and Spaghetti & Veggieballs (contained soy veggie balls; it came as a sheet from Yves and they turned it into a ball). A color photo shows each package.

Talk with the company. 1995. July 31. They have just shut down production. A lot of vegetarians enjoy their products, but they don't have enough sales to survive. They don't know what they will do next.

2246. Wildwood Natural Foods. 1995. Price list–January 9, 1995. Fairfax, California. 5 p.
• ***Summary:*** Wildwood's own product lines include: Sandwiches (7 products, incl. burritos and sushi), salads (17), tofu and tofu products (13), soymilk (2), hot dogs (1), tempeh (4).

Wildwood also distributes products made by other companies: Red Wood Foods (16 products), Mrs. Wiggles Rocket Juice (12), Grainaissance (17; amazake, pudding, and mochi), Sonoma Salsa (7), Yves Veggie Cuisine (9), Lightlife Foods (13), Turtle Island Foods (1), NuTofu soy cheese (3), Señor Felix's (8), Heart & Soul (5, Trim Slices), Natures Babies (10, baby foods). Address: 135 Bolinas Rd., Fairfax, California 94930. Phone: (415) 459-3919.

2247. Ham, P. Marc. 1995. The work of Semences Prograin Inc. (Micronisation Canada Inc.) in Quebec (Interview). *SoyaScan Notes.* Feb. 1. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** This company was established in 1980 and is now a leader in Canada in the field of value added soy products. About two-thirds of their business is making full-fat micronized soybeans for use in animal feeds (mainly dairy cows, plus hogs and poultry), and one-third is in breeding and growing soybean seed (they presently grow about 2,000 acres year for use as soybean seed). They now have two micronizing plants which produce the Micro Flake, the Micro Milled product and the Micro Elite (made from higher protein soybeans, with high bypass). Mark believes that a micronized product makes better feed than that produced on a low cost extrusion cooker. Extrusion may be better for monogastric animals than it is for dairy. They have a research and development program for new soybean varieties. They also contract with a winter nursery in Chile for reproduction during the winter. They buy about 55,000 tonnes/year of soybeans for processing into animal feed and for exporting to the Pacific Rim. They are one of the largest companies in Quebec that buy soybeans and keep them in Quebec. The big trading houses buy soybeans then export them mostly to Rotterdam, Netherlands, to the European crush market. Prograin keeps its Maple Glen varieties identity preserved. They screen soybeans to sort them into 3 sizes. The big beans (18/64 inch and over) are sold to Japan for use as green vegetable soybeans, the medium sized beans (500 tonnes/year) are used in the Chinatown in Quebec to make tofu and soymilk, and the small soybeans are used by 3 companies for making soy sprouts in Quebec. They have a natto program as well. Address: Semences Prograin Inc. (Micronisation Canada Inc.), 145 Bas Riviere Nord, St-Cesaire, Quebec, J0L 1T0, Canada. Phone: (514) 469-5744.

2248. Goodale, Ralph. 1995. Re: Opening of the ProSoya bulk soya milk processing plant in Gloucester, Ontario, Canada. Letter to Mr. Frank Daller, President of ProSoya Inc., 5350 Canotek Road, Unit 7, Gloucester, Ontario K1J 9C9, Canada, Feb. 24. 1 p.
• ***Summary:*** "It was a pleasure to meet you and participate in the opening of the ProSoya bulk soya milk processing plant in Gloucester on January 12, 1995.

"I would like to congratulate your company for being part of the dynamic strategic alliance of companies which will, beginning with this plant, turn Canadian soya beans into beverages and foods for the domestic and export markets."

Talk with George Conquergood of International ProSoya Corporation (IPC). 1999. May 10. George was present at the commissioning of this plant in Gloucester (pronounced GLOS-tur, a suburb of Ottawa, Ontario, located south southeast of Ottawa) and he met Ralph Goodale. This is the one and only ProSoya R&D facility and bulk soymilk plant in Ontario. It contained a new SC-100–better than the first SC-100 prototype developed for ProSoya by APV-Crepaco; the prototype finally wound up in Russia. APV-Crepaco built this machine to sell, using

ProSoya technology. The SC-100 uses a batch process; it is basically just a big SC-20. Address: Minister of Agriculture, Ottawa.

2249. Montanaro, Pamela. 1995. Revolutionary developments with soymilk in Cuba. Part I (Interview). *SoyaScan Notes.* Feb. 27. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Cuba now has at least 15 factories in operation that make a soy yogurt drink for children. The goal is to have 37 factories in operation by the end of 1995. Leaders of the project believe these 37 factories will be sufficient to provide at least 2 liters per week of soy yogurt drink to all Cuban children ages 7 to 14. Given that the population of Cuba is about 11 million and 23% of the population is under the age of 15, there are roughly 1.1 million kids eligible to receive free soymilk. So Cuba plans to be producing about 2.2 million liters of soymilk a week by the end of 1995. Amazing!

Pam coordinates the Freedom to Travel Campaign for Global Exchange (based in San Francisco). They had decided to do a trip to Cuba during the first week in October, 1994, where the itinerary was focused on projects related to sustainable development–such as organic agriculture, alternative energy, alternative medicine, the bicycle revolution, etc. The trip would also be a "Travel Challenge," since the U.S. government presently prohibits most Americans from traveling to Cuba, and from investing in or spending U.S. dollars in Cuba. In 1962 the U.S. imposed an export embargo against Cuba, severely damaging the economy. This unilateral embargo, which is still in effect, prohibits even the export of food or medicine from the USA to Cuba. Stiffer trade sanctions enacted by the U.S. in 1992 made things even worse. The only other country that has consistently voted with the USA at the United Nations in favor of this embargo is Israel–and Israel is now operating the largest citrus plantation in the world in Cuba, and also benefitting greatly from investments in Cuban textiles, etc. for export. The "Travel Challenge" is designed to expose U.S. anti-Cuba policies and invite public debate in the USA about their usefulness. The Soy Cubano! project is part of a larger campaign to get food and medicine exempted from the U.S. trade embargo against Cuba. Pam recently met with the staff of Senator Paul Simon (Democrat from Illinois) who is about to introduce a bill that would exempt food and medicine from all U.S. embargoes.

While on this trip in Oct. 1994, Pam met and had a long talk with Dr. Alberto Ortega-Jhones, who is head of Cuba's new soyfoods research project (Address: *Instituto de Investigaciones para la Industria Alimenticia,* Carreterra al Guatal, Km. 3½, La Lisa, Havana, Cuba. Phone: 29-9110). Dr. Ortega is a Cuban-born national in his late 40s or early 50s; Pam found him to be "so moving, kind of like a saint in my eyes, very sweet and modest." One of the vice-directors at the Cuban Food Research Institute in Havana, he was involved for several decades in dairy food research. He was an expert in the subject, studied all over the world, and speaks very good English. He said that since the "Special Period" of austerity started in 1989, production of cow's milk has been cut to about 20% of what it used to be. To provide an alternative protein drink, the Cuban Ministry of Agriculture made soyfoods a priority, and started to seriously divert resources into the soy yogurt drink project. By May 1994 Dr. Ortega's project developed soymilk technology and a recipe that was efficient to produce and that Cuban children liked. Dr. Ortega said he believed that "soy protein is the protein of the future" and he feels the Cuban soymilk project and its technology could serve as a model for Third World countries.

Cuba has about 100 factories across the country that produce dairy products. Dr. Ortega was one of the leaders involved in setting up these plants and in launching the program that has provided one liter of cow's milk per day on the ration to every Cuban child between the ages of 7 and 14. This milk went to families, not to schools, so that family members could share the milk if desired. People 65 and over also got a liter a day.

From Dr. Ortega, Pam learned that Cuba was developing a number of facilities to manufacture a soymilk yogurt drink. Each facility was located inside a former cow's milk dairy, and was based on converting former dairy equipment to soymilk production. Cow's milk is being phased out. By Oct. 1994 three soy factories were already operating in Holguin, Santiago and Pinar del Rio. Pam visited the latter factory. While in Cuba, she also tasted a soy-based hard cheese and a cream cheese.

The refrigerated soy yogurt drink is packed in liter bottles, and sent to the neighborhood grocery shop *(bodega).* Cuba is on a ration system and the soy protein drink is available on the ration, so people go to their neighborhood bodega, present their ration card, and pick up their rations, including the soy yogurt drink. This drink is very thick–more like kefir or a milk shake than milk. It apparently has a low pH, which extends its shelf life–and most people in Cuba now have a refrigerator. After finishing the soymilk, a family returns the bottle to the bodega for recycling.

Cuba presently imports most of the soybeans used to make its soy yogurt drink from Canada and Brazil. Pam learned from Chuck Haren of Plenty Foundation that, at one point in its history, Cuba had developed a soybean variety that was especially well suited for tropical climates at that latitude. Plenty used to grow this variety in Dominica. By Oct. 1994 agricultural co-ops in Cuba were starting to grow soybeans under contract for the soy yogurt drink factories.

When Pam returned to the USA from Cuba she decided to try to help the Cuban soymilk project. So in October

1994 she established a new company named Soy Cubano! Company–the Cuba Soyfood Company, which would try to raise $50,000 to help fund another soymilk plant in Cuba by selling "honorary shares" to Americans interested in investing in the health of Cuban children. For a description of the company and its shares see Global Exchange 1994. As of Feb. 1995 Soy Cubano! had raised several thousand dollars. They have not yet sent the money to Cuba, since they are hoping that the Cuban government will allow it to be considered a direct business investment–thus creating the opportunity for a test case to challenge the U.S. embargo. If that does not materialize, the money will be used to make a direct cash donation–which is also "trading with the enemy."

One "Honorary Share" in Soy Cubano costs $5. Anyone who is interested in "investing" can contact the Food and Medicine Campaign at Global Exchange in San Francisco. Remember, however, that doing this involves a big risk because the penalty, if the U.S. government should choose to arrest anyone for "trading with the enemy," is up to 10 years in prison and a $250,000 fine. Pam says of Soy Cubano! "It's been kind of a magical project. It has so many dimensions to it and so many fine people are involved.

When Pam returned to Cuba in November 1994, eleven soymilk factories were in operation; she goes to Cuba roughly 5-6 times a year. Dr. Heshan Ragab, M.D., is working with Pam on this project. Pam has read Mark Messina's book, *The Simple Soybean and Your Health.* She found it "incredibly enlightening," and has purchased several copies of it since and given them to key people, including Dr. Ortega. Continued. Address: Coordinator of Soy Cubano! Company, Food and Medicine Campaign, c/o Global Exchange, 2017 Mission St. #303C, San Francisco, California 94110. Phone: 415-255-7296 or 415-558-8682.

2250. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. New margarine colour freedom. Feb. p. 1.
• ***Summary:*** On 21 Dec. 1994 Canada's Ministry of Agriculture, Food and Rural Affairs modified the 1949 Oleo Margarine Act by announcing that "effective January 1, Ontario manufacturers will no longer face restrictions on margarine colouring beyond the national food safety standards. In addition, restrictions surrounding the oil content of margarine will be removed, enabling Ontario manufacturers to produce a wider range of margarine products." Note: Prior to this time margarine in Ontario had to be colored either near white or a shocking very bright yellow.

The Ministry's decision came just before the implementation on 1 Jan. 1995 of a GATT provision allowing margarine imports into Canada for the first time in history. Soybean growers will benefit from the decision since approximately half of the oil from Canada's soybean crop is used in the production of margarine. "The decision is particularly crucial considering Ontario's increased soybean production in recent years." Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

2251. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. 1994 Annual Meeting highlights. Feb. p. 3.
• ***Summary:*** More than 300 soybean growers, industry and government representatives, and suppliers attended the Dec. 1994 Annual Meeting of the Ontario Soybean Growers' Marketing Board. Bernard Leung (photo shown) of Harcan Kingsoya spoke on soyfood opportunities. Garth Baxter of Maple Leaf Foods expressed his belief that the miso market holds the best potential for expansion of Canada's food soybean exports to Asia. New markets with good potential include Taiwan, South Korea, Indonesia, and the Philippines.

"Frank Daller of ProSoya reported that his company is setting up soymilk production facilities in several locations across Canada. Their strategy is to sell bulk soymilk to dairies for processing and packaging."

The Board reported a financial operating surplus of $311,225 for the year ending 31 August 1994, and a reduction in Board fees from 90 cents per tonne to 80 cents for the 1994 crop. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2252. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. Margarine TRQ. Feb. p. 4.
• ***Summary:*** Under GATT, the Canadian federal government has agreed to allow 4,500 tonnes of foreign margarine (200 tractor-trailer loads) to enter Canada tariff free during 1995. This initial amount, which represents 3% of Canada's total margarine consumption, is referred to as the Tariff Rate Quota (TRQ). The TRQ is expected to rise significantly over the next 10 years, eventually reaching 100%. However, further WTO/NAFTA negotiations will determine the actual rate at which the border will open to foreign margarine. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2253. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. Japanese miso mission visits Ontario. Feb. p. 4.
• ***Summary:*** Five Japanese miso manufacturers, who collectively purchase 180,000 tonnes/year of soybeans for their miso requirements, visited Ontario to see for themselves the excellent quality and appearance of Ontario soybeans. These 5 men represent over 1,600 miso manufacturers in Japan. They also met with OMAFRA Minister Elmer Buchanan. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2254. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. Transportation study overhaul. Feb. p. 5.

• ***Summary:*** Under the Western Grain Transportation Act (WGTA), Canada's federal government pays $560 million each year to Canadian railroads to subsidize the movement of grains and oilseeds out of the prairie provinces. Major changes in the Act have been announced. "Transport Canada has indicated that it will stop paying the WGTA subsidy and Agriculture and Agri-Food Canada doesn't have any extra funds available in its budget to continue the subsidy. Proposals for change include phasing the program out over several years and an immediate buyout."

OSGMB is continuing to press the federal government to eliminate minimum compensatory rail rates on canola products moving east of Thunder Bay. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2255. MacKinnon, Duff. 1995. Restrictions on mixing soy and dairy products in Ontario province, Canada (Interview). *SoyaScan Notes.* March 10. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Under Canada's Edible Oil Act, the blending of most soy and dairy products is not legal, although certain specific products, such as coffee whitener and edible oil topping (whip topping) that were on the market when the law was written were grandfathered and kept legal. Duff would guess that this Act was passed in the 1950s or 1960s.

If illegal imported products are noticed on the shelves of Canadian food stores, any person may complain to the Canadian Ministry of Agriculture. Inspectors will investigate the case. Address: Ontario Ministry of Agriculture and Food, GAC RR#5, P.O. Box 1030, Guelph, ON N1H 6N1, Canada. Phone: 519-767-3166.

2256. Hume, Christopher. 1995. Forgotten Toronto and a lost future: Architectural monument's days numbered and few people seem to care [Victory Soya Mills]. *Toronto Star (Ontario, Canada).* March 29. p. F1. Entertainment section.
• ***Summary:*** A demolition permit was issued two weeks ago for "Victory Soya Mills and word is the east-end lakeside monument has no more than two or three months of earthly existence left." The city has refused to designate the complex as a historical site. The owners, CanAmera Foods and Central Soya of Canada plan to raze the site; until that is done, it is for them a "bottomless pit of property taxes and round-the-clock security." The cost of demolition, with a ball and chain, is estimated at $3 million.

A large photo taken from ground level shows the stately row of concrete silos. Address: Star's Architectural Critic.

2257. Cloud, Jon. 1995. Relationship with ProSoya Inc. in Ontario, Canada (Interview). *SoyaScan Notes.* March 30. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** John has known the people at ProSoya for years. ProSoya has a staff of 3, and they are not producing any products yet. They were operating off government grants initially–probably both provincial and federal (Ag Canada) grants. The government apparently saw the possibility of creating jobs, setting up a franchise, and perhaps exporting the technology or products. John shipped them at least 3 large samples of organically grown soybeans on a skid in Sept. 1994. They had no records of the shipment, and only one person vaguely remembered it. They called John in the fall and asked him to set aside a considerable tonnage of organically grown soybeans–of which they have taken none because they are not in production. John wonders how long the company can survive.

Update, 1995 May 17. ProSoya may have a contract with Neilson Dairy, a large Canadian ice cream manufacturer. ProSoya may make soymilk for them to use in making a non-dairy soy ice cream. This could pull ProSoya's fat out of the fire. Note: Neilson launched this soy ice cream in Nov. 1996. Address: Cloud Mountain Inc., 342 Indian Rd. Cres., Toronto, ONT M6P 2H1 Canada. Phone: (416) 762-0940.

2258. Carroll, Kenneth K.; Kurowska, Elzbieta M. 1995. Soy consumption and cholesterol reduction: Review of animal and human studies. *J. of Nutrition* 125(3S):594S-597S. March. Supplement. First International Symposium on the Role of Soy in Preventing and Treating Chronic Disease. [25 ref]
• ***Summary:*** Contents: Introduction. Factors responsible for cholesterolemic properties of dietary proteins. Mechanism of action of dietary proteins and amino acids. Address: Centre for Human Nutrition, Dep. of Biochemistry, Univ. of Western Ontario, London, ONT, N6A 5C1, Canada.

2259. Furuhata, Hideki. 1995. Japanese soyfoods markets. Paper presented at a conference titled "Producing Soybeans for the Soyfoods Market." 9 p. Held 2 March 1995 at Ames, Iowa.
• ***Summary:*** This paper consists of nine very interesting statistical tables, one on each page. Table 1 shows the supply and demand for soybeans in Japan from 1984 to 1992 (in tonne = metric tons). The supply of Japanese-grown soybeans decreased from 126,000 tonnes in 1984 to a low of 73,000 tonnes in 1992, and imports increased from 4,401,000 tonnes in 1984 to 4,725,000 tonnes in 1992. The demand for soybeans from crushers has stayed about steady, ranging from a low of 3,428,000 tonnes in 1991 to a high of 3,928,000 tonnes in 1985. Demand for food uses has increased from 786,000 tonnes in 1984 to a high of 927,000 tonnes in 1992 (up 18%). Demand for use as feed has increased from 55,000 tonnes in 1984 to 95,000 tonnes in 1992.

Table 2 shows soybean utilization in Japan by type of food product from 1987 to 1994: Use of soybeans for tofu and aburage stayed about steady at 498,000 tonnes, by far

the largest food use. Use for miso decreased slightly from 180,000 tonnes in 1987 to 170,000 tonnes in 1994. Use for natto grew strongly from 97,000 tons in 1987 to 110,000 tonnes in 1994. Use for kori-tofu (dried-frozen tofu) grew slightly from 29,000 tonnes in 1987 to 30,000 tonnes in 1994. Use for soy sauce grew strongly from 5,350 tonnes in 1987 to a record 25,300 tonnes in 1992, dropping slightly to 23,000 tonnes in 1994. Use for soymilk decreased slightly from 4,000 tonnes in 1987 to 3,100 tonnes in 9994. Total use of soybeans for food in Japan grew slowly from 875,350 tonnes in 1987 to 930,000 tonnes in 1994 (up 6%).

Table 3 shows Japanese population and per capita consumption of soyfoods from 1982 to 1992. Population grew from 103,720,000 to 124,452,000 during this period, while per capita consumption grew from 6.8 to 7.4 kg/capita (up 8.8%).

Table 4 shows per family expenditures and consumption per year on tofu, natto, miso, and soy sauce from 1982 to 1992. For example, expenditures on tofu increased from 2,535 yen in 1982 to 7,992 yen in 1992, while consumption fell from 87.98 cakes to 79.26 cakes. Thus in 1992 the average Japanese family consumed 1 cake of tofu every 4.6 days.

Table 6 shows imports of soybeans for food from the USA, Canada, and China from 1982 to 1992. Imports from the USA are subdivided into IOM, Beeson, and other identified varieties. In 1992 about 88.7% of food-grade soybeans imported to Japan from the USA were IOM. Moreover, of all these soybeans imported for food use in 1992, about 76.6% came from the USA, 21.5% from China, and 1.85% from Canada.

Table 6 shows the amount spent per capita by people of different 5-year age-groups on four soyfood products. The average person in the age 60-64 year group spent ¥2,976 on tofu, ¥1,539 on miso, ¥1,490 on soy sauce, and ¥1,098 on natto. The average person in the age 30-34 year group spent ¥1,581 on tofu, ¥603 on miso, ¥508 on soy sauce, and ¥708 on natto.

Table 7 shows the source of soybean used to make four soyfood products in 1984, 1990, and 1992. In 1992, of the 498,000 tonnes of soybeans used in tofu and aburage in Japan, 74.8% of the soybeans were IOM from the USA, 6.0% were Beeson (USA), 8.0% were other U.S. varieties, 3.0% were from China, and 8.0% were grown in Japan. Of the 30,000 tonnes use to make dried-frozen tofu, 86.7% were IOM and the rest were from China. Of the 108,000 tonnes used to make natto, 55.5% were from the USA and Canada, 39.8% were from China, and 4.6% were grown in Japan. Of the 176,000 tonnes of soybeans used to make miso, 88.0% were from China, 5.7% were white-hilum beans from the USA, and 6.25% were grown in Japan.

Table 8 shows that production of soybeans in Japan from 1982 to 1994 has decreased sharply. In 1982 some 262,300 tonnes were produced on 147,000 ha with a yield of 1,782 kg/ha. In 1994 some 98,800 tonnes were produced on 26,500 ha with a yield of 1,620 kg/ha.

Table 9 is two charts showing the distribution system for (1) Imported soybeans from suppliers to end users, and (2) Domestic soybeans from farmer to end users. Farmers sell to the Zenno Nokyo or a collector. Address: Mitsui & Co. Phone: 515-294-0160.

2260. Hayes, Keri. 1995. Feeding their own: Cubans turn to soy as an alternative protein source. *Bluebook Update (Bar Harbor, Maine)* 2(1):1, 3-4. Jan/March.

• ***Summary:*** Pam Montanaro of Global Exchange (San Francisco, California) explains how Cubans–led by Alberto Ortega Jhones–have turned to soy and developed a host of delicious products, especially soymilk yogurt drink (in five flavors), which are now being produced in factories that formerly made dairy products. These factories are also manufacturing hard cheese from soymilk, soymilk cream cheese, and soymilk ice cream.

Some of the soybeans used to make these soyfoods are now being grown in Cuba; however most are imported from Canada and Brazil.

The USA, which has a trade embargo against Cuba, also holds embargoes against Iraq, North Korea, Libya, Serbia, and Montenegro. However the "Cuban embargo is the only one, at this time, that denies the right to trade for food and medicine." A photo shows two men at work in one of the dairy factories that has been converted to include a soyfoods processing section.

2261. Ontario Soybean Growers' Marketing Board. 1995. Technical soybean mission: Japan, Hong Kong, Malaysia, Singapore. March 10-26, 1995. Chatham, Ontario, Canada. 23 p. 28 cm. [Eng]

• ***Summary:*** Contents: Participating members: Dr. Karen Lapsley, Mr. Ron McDougall, Mr. Michael Loh, Mr. Doug Jessop (food technologist and tofu expert, Harrow Research Station), Mr. Kim Cooper (marketing specialist, OSGMB). Note: This is the first Canadian soybean mission in which a food technologist (Doug Jessop) participated. Background. Mission objectives. Acknowledgements. Mission details–Japan: Canadian embassy.

Japan Miso-Co-op Industrial Association: Japan imports about 250,000 tonnes {metric tons} of soybeans from China each year, and about 150,000 tonnes of that amount is for the miso market. The remaining miso soybeans come from Canada, USA, and Japan. The best soybean for making miso comes from the Hokkaido area of Japan. It is a large, white hilum type, perhaps Toyomasuri. Generally the larger the soybean the better for making miso. Japanese miso makers need two types of soybeans from Canada: (1) Normal SQWH (Special Quality White Hilum); average values for color, taste and texture are acceptable though higher values would be preferable; (2) High

Premium Soybeans; they would consider paying a premium for better color, taste, and texture.

Azuma Natto Foods Co. Ltd.: This natto company uses 7,000 tonnes/year of soybeans making them the third largest natto maker in Japan. They use 65% USA, 25% Japanese, and 15% Canadian soybeans. There are four sizes of natto: Small natto < 5.5 mm accounts for 72% of the natto market in Japan; Large natto, 5.5 to 6.2, account for 18%. Extra large natto > 8.5 mm account for 18%. Split seed natto account for 10%. Factors in assessing the suitability of soybeans for natto are: Fat content should be less than 19%. Total sugars–Group 1 contains sucrose, fructose, and glucose, group 2 contains raffinose and stachyose. Calcium affects the hardness or softness of natto. The ideal range is 180-250 mg/100 gm. Sanwa Company–Tofu manufacturer.

Wed., March 15–Japan Tofu Association: There are over 20,000 tofu makers in Japan, and 53 of these are members of this association, with half of the 53 being in the Tokyo area. Only 185 tofu manufacturers in Japan have 30 or more employees. Tofu makers consider there are two types of organic soybeans: true organic and semi-organic. The association imports about 2,000 tonnes of each type from the USA; they are OCIA certified.

Home Foods Company Ltd. uses 4,000 metric tons of soybeans a year, mostly a blend of 70% Chinese white hilum and 30% U.S. white hilum. The soys from the USA are I.O.M. soybeans, especially the "High Super" variety. For the more premium market they use a blend of 50% Japanese soys and 50% Harovinton soybeans. They have also just started blending 50% Chinese and 50% Canadian white hilum soybeans. The two most important criteria for their soybeans are high protein and high total sugars. Sugar levels of Chinese soybeans (24-25%) are higher than those of Canadian soybeans (23-24%).

Thursday, March 16–Takeya Miso Co.: Ikuo Fujimori, President. Takeya has two plants employing 100 production workers and using 5,000 to 6,000 tonnes of soybeans yearly. 70-80% of their products are sold in supermarkets. For years they have been using the U.S. soybean variety Kanrich.

Nagano Chushin Agricultural Experiment Station: They have been breeding soybeans since 1957 and in that time have developed and released 17 varieties, the most famous being Enrei. The staff of 34 includes 5 soybean breeders. Dr. Nobuo Takahashi has been breeding soybeans for over 18 years. Japan has domestic soybean area of 370,500 acres (150,000 ha); it is decreasing, so imports are increasing.

Nagano Miso Industrial United Co-operatives: This group consists of 8 local co-ops made up of 160 miso manufacturers, who pay a fee to this group based on sales. There was a detailed discussion of the types of sugars in soybeans necessary for good miso.

Friday March 17–National Food Research Institute. Tsukuba is developing into a science research park, now containing over 200 different research institutes. NFRI, originally founded in 1934 as the Rice Institute, moved to Tsukuba from Tokyo in 1973. Thirty years ago, all tofu in Japan was made with Japanese soybeans. Dr. Toshiro Nagai spoke about natto: In 1992 the natto needs of Japan were met by soybeans from China (45%), USA (38%), Canada (17%), and Japanese domestic (8%). Natto consumption has increased by about 10% for each of the last few years. Dr. Sayuki Nikkuni spoke about miso: In 1992 the miso needs of Japan were met by soybeans from China (87%), USA (6%), Japan (6%), and Canada (1%). Dr. Kaoro Koyama spoke about tofu: In 1992 the soybeans for tofu totaled 490,000 tonnes and came from USA (390,000 tonnes; 80%), Canada (50,000; 10%), Japan (20,000; 4.1%), China (20,000; 4.1%), and South America (10,000; 2.0%).

Asahi Food Processing Co. Ltd. This plant, which has 350 employees and operates 365 days/year, was established in 1972 and produces tofu, fried tofu, natto, noodles, and juices. They use 15 tonnes of soybeans daily or 4,900 tonnes/year, of which 38.8% are grown in Japan and the remaining 61.2% are IOM from the USA. Each day they make 120,000 cakes of tofu, 100,000 pieces of fried tofu, and 20,000 packages of natto. Most of the soybeans they use in production are dehulled. They use about 500 tonnes/year of OCIA certified soybeans from the USA and some semi-organic soybeans from Japan. The prices they pay per kg of soybeans are: IOM 30-40 yen; Vinton, identity preserved varieties, and Harrovinton [Harovinton] 100 yen; organic 120-140 yen; Enrei (Japanese) 400 yen.

Saturday, March 18–Hong Kong. Canadian High Commission. Canada Packers (Hong Kong) Ltd.

Monday, March 20. Shenzhen Economic Zone: This area of 30 square km, just outside the Hong Kong border, contains 1 million people or 60% of the provincial population, all of whom require a special permit to work in the area. This economic zone is booming, basically due to spiralling costs in Hong Kong, where many businesses and factories are closing and moving to this area, where land and labor costs are much lower.

Shenzhen Vitasoy (Guang Dong) Foods & Beverage Co. This plant, which is only one year old, produces a major share of the soymilk for Hong Kong. They are able to import soybeans at a low tariff rate because they ship the majority of their finished products back into Hong Kong. The plant uses Canadian SQWH (Special Quality White Hilum) soybeans, but has problems with uneven seed size. They presently receive the soybeans in 45 kg jute bags, but would prefer strong 45 kg poly-lined paper bags. A small percentage of dairy milk is mixed with the soymilk, which is thought to improve its texture and taste.

Tuesday, March 21. Dah Chong Hong, Ltd. This was the first company to import Canadian soybeans for food use in the early 1970s. Dah Chong pointed out that Ontario soybeans were experiencing increasing competition from

Quebec soybeans, especially in the past two years. The Quebec soybeans are 5-10% less expensive, due to lower basis levels, lower freight costs, and being more aggressive in a new market. Their quality is similar to Ontario, though the seed coat color is somewhat darker. There are about 50 tofu makers in Hong Kong, 10 larger size and 40 smaller size, although there is not a large difference is size. Consumers believe that packaged tofu is not as fresh as that purchased fresh daily from local markets.

Amoy Food Ltd. (Dr. Alain Butler; This plant makes soy sauce and other sauces used in cooking. They use only Canadian soybeans, the Maple Glen variety from Quebec). Wed., March 22. The group visited Hung Tao Soya Bean Products Pty., a traditional Hong Kong tofu and soybean sprout plant in the New Territories.

Thursday, March 23–Malaysia. Canadian High Commission. Yeo Hiap Seng (Malaysia) Berhad (Contains excellent details on the company). Chop Lee Kit Heng Sdn. Bhd. (A soybean trader selling to end users in Malaysia).

Friday, March 24–Singapore. Canadian High Commission. Yeo Hiap Seng Ltd. (Singapore). Meeting with nine tofu manufacturers in Singapore. (The name of each company is given. There are 40 tofu makers in Singapore, and the majority now use Canadian soybeans. Tofu growth in the last 5 years has been very rapid and competition is fierce). Asia Corporation Pte. Ltd. (This company accounts for about 70% of the soybeans imported into Singapore and Malaysia. They first brought Canadian soybeans into the area in 1978). Canadec Private Ltd. Sing Yeap Trading Pte. Ltd.

Saturday, March 25–Unicurd Food Company Pte. Ltd. (Mr. Goh gave a tour of his facility and discussed his plans for a new plant in late 1995). Yam Thye & Co. (Warehouse).

Encore Ltd.: Sylvia B. Hollenstein, managing director. This company, based in Switzerland, uses Swiss technology to produce soy yogurts, chocolates, and noodles in Switzerland from Chinese soybeans–mostly for the taste. The products are shipped from Switzerland to the company's 3 retail stores in East Asia; they plan to expand to 10 retail stores by the end of 1995.

Appendixes A through J, issued as a separate document, contain extensive and detailed information and some published documents related to the technical mission. Address: P.O. Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

2262. Rao, A.V.; Sung, M.K. 1995. Saponins as anticarcinogens. *J. of Nutrition* 125(3S):717S-724S. March. Supplement. First International Symposium on the Role of Soy in Preventing and Treating Chronic Disease. [53 ref]
• ***Summary:*** Contents: Introduction. Present knowledge: Direct cytotoxic and growth inhibitory effects against tumor cells, immune-modulatory effects, saponin binding to bile acids, normalization of epithelial cell proliferation, knowledge on soybean saponins.

Soybeans are one of the most important sources of dietary saponins. They are the main source of protein in many vegetarian diets. The authors found that soybean saponins at the concentration of 150-600 ppm had a dose-dependent growth inhibitory effect on human carcinoma cells. The viability of those cancerous cells was also significantly reduced. Soybean saponins did not increase cell membrane permeability. Recent research suggests that, in addition to anticarcinogenic properties, saponins also possess cholesterol-lowering, and immune-stimulatory properties. However they also have a bitter taste, and they can lower nutrient availability and decrease enzyme activity, contributing to a growth-retarding effect in animals. Address: Dep. of Nutritional Sciences, Univ. of Toronto, Toronto, ONT, Canada.

2263. Robinson, P.H.; Fredden, A.H.; Chalupa, W.; et al. 1995. Ruminally protected lysine and methionine for lactating dairy cows fed a diet designed to meet requirements for microbial and postruminal protein. *J. of Dairy Science* 78(3):582-94. March. [22 ref]
• ***Summary:*** Soybean meal and corn gluten meal were used in the diets of dairy cows at Trura, Nova Scotia, and Fredericton, Nova Scotia. Address: 1. Atlantic Ruminant Research Group, Fredericton Research Centre, P.O. Box 20280, Fredericton, New Brunswick E3B 4Z7, Canada; 2. Nova Scotia Agricultural College, Truro, NS B2N 5E3.

2264. Gupta, Rajendra P. 1995. Automatic food processor. *U.S. Patent* 5,408,922. April 25. 6 p. Application filed 7 June 1993. 3 drawings. [1 ref]
Address: 9 Veery Lane, Ottawa, ONT, K1J 8X4 Canada. Phone: 613-745-9115 or 613-744-4401.

2265. Buzzell, Dick. 1995. What's new in soybean breeding [in Ontario]. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada)* 8(1):2. April.
• ***Summary:*** "The goal of soybean variety development at the Harrow Research Centre is to produce varieties with improved quality for processing into soyfoods. At the same time, improvements are made in disease and pest resistance, soybean yield, and other traits required by soybean growers."

Soybeans with a higher protein content will have to be more expensive. "We are also selecting for differences in protein composition, since this may affect the making of different kinds of tofu. Also, some consumers may prefer the natural flavour of soybeans, whereas others may prefer a more bland flavour, so both kinds are being selected." Address: PhD, Soybean Breeder, Harrow Research Centre, Harrow, ONT, Canada.

2266. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada).*1995. Technical mission to the Far East. 8(1):3. April.
• ***Summary:*** Five members from the Canadian soybean industry visited Japan, Hong Kong, Malaysia, and Singapore from March 10-25, 1995. Members included Dr. Karen Lapsley (Chairperson of the Centre for Food & Animal Research, Ottawa, Ontario), Mr. Doug Jessop (Food Technologist from the Harrow Research Station, Harrow, Ontario), and Mr. Ron MacDougall, Mr. Michael Loh, and Mr. Kim Cooper (OSGMB, Chatham, Ontario).

2267. Fujimori, Ikuo. 1995. Canadian soybeans for miso manufacturing in Japan. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada)* 8(1):1. April.
• ***Summary:*** "I have been using Canadian soybeans constantly since 1975, which I first tested soybeans from Ontario. I chose the variety 'Harwood' because of its large size, white hilum, and high sugar content... These first soybeans were bagged shipments in containers, and now we receive the soybeans in bulk containers.

"In 1978 I visited soybean growing areas in Ontario. I found a new variety "Harcor" to be one of the better varieties for miso making... The majority of the Ontario soybeans purchased are SQWH (Special Quality White Hilum), namely mixed varieties of white hilum soybeans. At the same time we have bought some 'IP' (Identity Preserved) varieties in limited quantities."

"In the 1980s, I joined with four soybean missions to Canada, sponsored by the governments of Canada and Ontario, and also by the Ontario Soybean Growers' Marketing Board (OSGMB). I gained much information and knowledge about Ontario soybeans. I was impressed by the co-operative system between the OSGMB, the governments of Canada and Ontario, the soybean producers and the industry personnel involved. I was also impressed by the work of keeping quality standards by the Canadian Grain Commission, and by the study of developing new soybean varieties for food use at the Harrow Research Station. Using Canadian soybeans, I found the quality rather stable compared to Chinese soybeans. That is a big advantage for miso manufacturing."

In December 1994 the Japanese Miso Manufacturers Association visited Ontario. As of 1995 "the quality of Chinese soybeans seems unstable and their ability to supply is fluctuating. Therefore many miso makers are now thinking of using Canadian and American white hilum soybeans instead of Chinese soybeans."

A photo shows Mr. Fujimori, Fred Brandenburg of OSGMB, and Elmer Buchanan (Ontario Minister of Agriculture).

Note: This bi-annual newsletter was formerly titled *Ontario Export Soybeans.* Formerly 2 pages, green on yellow, it is now 4 pages, dark green and brown on tan. Address: President, Takeya Miso Co., Nagano, Japan.

2268. Hedges, Brad. 1995. Lipoxygenase in soybean seed. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada)* 8(1):3. April.
• ***Summary:*** "Soybean seed contains three distinct proteins called lipoxygenases. The unsaturated fatty acids, linoleic and linolenic acid, are broken down by the lipoxygenase enzymes. The compounds produced by lipoxygenase activity have an undesirable bitter taste and a grassy flavour. One of the compounds is hexanal, which is the same chemical one smells when grass is cut. To improve the taste and flavour of soya products, lipoxygenases are inactivated by cooking or extraction, using chemical solvents.

"Lipoxygenases can also be removed from the soybean seed genetically. Varieties have been developed that lack lipoxygenase-2, the most active lipoxygenase enzyme. Varieties that lack two, or all three enzymes are under development at the Agriculture and Agri-Food Canada Research Centre at Harrow, Ontario. Lipoxygenase null varieties are preferred by processors, because the resulting soya products have better flavour and smell. However, it should be noted that, in some regions of the world, consumers prefer beany flavours." Address: Soybean Research Manager, Pioneer Hi-Bred Production Ltd., Chatham, Ontario.

2269. Lowe, James M. 1995. Testing at the Canadian Grain Commission. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada)* 8(1):2-3. April.
• ***Summary:*** "Canada has long been recognized internationally as a producer and supplier of high quality grains... For over 25 years the Canadian Grain Commission (CGC) has monitored shipments of Canadian grains, including soybeans, for a variety of compounds that might pose a risk to the health of animal and human populations." Today the CGC tests for over 70 pesticide residues, 10 mycotoxins (including aflatoxins), and "heavy metals."

A photo shows members of the Japanese Miso Manufacturers Association examining grain samples at the CGC office in Chatham, Ontario. Address: Regional Manager, Canadian Grain Commission, Chatham, Ontario, Canada.

2270. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. Profiles: The Ontario Grain and Feed Association (OFGA), and its executive vice president Dave Buttenham. April. p. 7.
• ***Summary:*** Describes the activities of OFGA, which is a voluntary, self-funded organization representing about 400 elevator locations across the province. The "industry is more confident that ever of the health of its long-term relationship with the province's soybean producers."

"Under the terms of the Ontario Farm Products Marketing Act, OFGA representatives meet each year with representatives of the OSGMB and the crushing industry to negotiate maximum handling charges, drying fees, and a pricing formula that currently requires buyers to pay at least as much for Ontario soybeans as the beans would be valued in export markets. As well, the elevators which are licensed by the OSGMB to buy soybeans, deduct the soybean check-off [checkoff], and send it to the board, and help deliver the soybean advance payment program." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2271. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. New export association [Canadian Soybean Export Association]. April. p. 3.
• ***Summary:*** A few years ago the OSGMB called together Canadian soybean exporters so see whether it might be possible for them to work together as a group, with the Board, since all shared a common goal. A committee was formed and it adopted the name of the "Canadian Soybean Export Promotion Committee." It has since evolved and adopted a new name, the "Canadian Soybean Export Association." The goal is to promote the export of Canadian soybeans and soya products into world markets. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2272. Perlmutter, Johanna F. 1995. Book review: *Encounters with Aging: Mythologies of Menopause in Japan and North America,* by Margaret Lock (1993). *J. of the American Medical Assoc.* 273(17):1394. May 3. [1 ref]
• ***Summary:*** In this pioneering and now famous study, the author interviewed more than 1,000 Japanese women on the subject of menopause (in Japanese, in Japan) over a period of 20 years. The interviews were designed to establish what symptoms these women had experienced after menopause, and how they thought about it. She explains that Japanese women find menopause less traumatic than American women. She compared her findings with the results of a study of 2,000 Canadian women. The Japanese diet, rich in soyfoods, was identified as a major reason because of the natural phytoestrogens found in soyfoods.

*Webster's Dictionary* defines menopause, a term first used in 1872, as "the period of natural cessation of menstruation occurring usually between the ages of 45 and 50." The author acknowledges several problems with terminology in this study. First, there is no term for menopause in Japanese; therefore a term that is thought to be similar was used. Second, in English the terms "menopause" and "mid-life crisis" are not clearly separated. From the responses quoted in this book, the term used may be closer in meaning to "mid-life crisis" than to "menopause."

Acknowledged cultural problems also exist: Japanese women are polite and want to please. They may give the answer they think the interviewer wants to hear. Because they tend to be shy, they may be embarrassed by the questions being asked and thus may not be completely truthful in their responses. Address: M.D., MPH, Beth Israel Hospital, Boston, Massachusetts.

2273. Shimizu, Teruo. 1995. Recent developments at Miyako Oriental Foods (Interview). *SoyaScan Notes.* May 3. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Miyako's miso business is growing rapidly. They can no longer keep up with demand. This summer Miyako plans to triple its production volume. They hope to buy another plant nearby and make miso in both their current plant and at the new location. Note: As of Feb. 1994 Miyako reported that it was making 2.2 million lb/year of miso.

In 1982 Miyako started importing freeze dried miso and spray dried miso from its parent company in Japan. But the high cost of Japanese imports resulting from the steady decrease in the value of the U.S. dollar has led Miyako to develop its own freeze-dried product in California. They are working with Mercer Processing Inc. in Palo Alto, which does the freeze drying. Later, they plan to use this freeze-dried miso to formulate other products, such as instant miso soups.

In addition, they plan to develop a spray-dried miso (which is lower quality and less expensive, and contains maltodextrins).

Miyako has started getting my enquiries for products from companies in Canada and Mexico because of NAFTA. Address: Vice President, Miyako Oriental Foods Inc., 4287 Puente Ave., Baldwin Park, California 91706. Phone: 818-962-9633.

2274. Yee, Clarence. 1995. Re: Invention of low-cost, fully-automated yuba processing equipment. Letter (fax) to William Shurtleff at Soyfoods Center, May 15. 1 p.
• ***Summary:*** Clarence has designed and successfully built a production size automatic yuba processing unit for Sunrise Markets Inc. in Vancouver, BC, Canada. The yuba forming tray surface is 4 feet by 8 feet. One unit can make about 5 lb/hour of yuba. The production capacity rises as the humidity of the room decreases (the ideal is 30%), as a fan is used to draw steam off the table, and as the temperature of the room rises (the ideal is 100ºF). The unit is very reliable and easy to operate. The cost to make this unit is about $4,500, which is less expensive than the same size manual processing unit made in Taiwan. The sales price has not yet been determined. An unskilled worker could easily look after 40 units; a conveyor lifts off the yuba sheets, so he only has to clean the equipment.

Sunrise now has two of these yuba units, and they started to make fresh yuba about 4 months ago. The product has a shelf life of about 10 days. Clarence worked for Ken

Lee's yuba company in California about 10 years ago. Later he helped Peter Joe set up the soyfoods equipment at Sunrise Market in Vancouver. He is now retired. Address: 4027 Charleswood Dr., N.W., Calgary, ALB T2L 2E1. Phone: (403) 282-5767.

2275. Feldman, Nick. 1995. New developments at Nutrisoya (Interview). *SoyaScan Notes.* May 16. Conducted by William Shurtleff of Soyfoods Center. [Eng]

• ***Summary:*** Giles Goulet is no longer president of Nutrisoya. In Oct. 1993, he sold his shares to Nick Feldman and one other person, then he (Giles) left the company in Aug/Sept. 1994. Nick is the new president. As soon as Mr. Goulet was out of the company, it started doing very well, and it is still doing well. Mr. Goulet had big ideas but they were not feasible. He did not know the market and was not skilled at marketing.

Nutrisoya got its company name from a brand name owned by Victor Food Products, Ltd. in Scarborough, Ontario. "We had our lawyers take care of that." But Nutrisoya did not buy the company Victor Food Products.

Nutrisoya built its own soymilk plant using components from various sources, including many pieces made by Alfa-Laval. "If you have the right engineers who know something about making good-tasting soymilk, with a few modifications, we have been able to make a soymilk with no beany flavor."

Nutrisoya has never had a Tetra-Brik machine in house; they have their soymilk products packaged in Tetra-Brik cartons by a very large co-packer in Canada. Nutrisoya's competition in soymilk comes largely from Edensoy and from Pacific Foods "which now has a 3rd generation Tetra Pak machine, with the re-cap capability, though supposedly they have not yet perfected the technology." Nutrisoya is the biggest soymilk manufacturer in Canada, with little competition in soymilk from other Canadian companies.

Soymilk products: They no longer make Chocoya; even though it is a great product, it was marketed incorrectly, more like a dairy milk. Since the word "Soya" did not appear on the front panel, consumers often thought it was a dairy milk and so they were not willing to pay a little more for it. It was sold on the shelf in Quebec next to a dairy milk named Chocayo, which retailed for $0.30 less per 3-pack. He plans to introduce it again some time. Nutrisoya still makes their Natura (pronounced nah-TUR-uh) line of soymilks in strawberry, vanilla, and original flavors, in aseptic Tetra Brik cartons. Nick has a brand new soymilk product named Nutrisoy that he is ready to launch in 1 liter Tetra Brik cartons. "We've been working on it for quite a while. I just have to press a button and it will be out in 2½-3 weeks. It has the exact same ingredients as Edensoy, except it is lower in fat, and has a more neutral taste and a better nutritional profile. The Nutrisoy line, which will start with vanilla and original flavors, will probably end up replacing the Natura line." Nick would ideally like to package the new line in re-cap Tetra Brik cartons like Pacific does, but that package is not available to him. "I'm a little bit scared to invest a lot of money in a product and its packaging that is going to be competing against other products that have more advanced packaging," the re-cap pack. So Nick hasn't decided when, or even if, he will "press the button." The big question is this: What percentage of consumers, who are less cost conscious, are willing to pay about 20% more at retail for the re-cap pack. Bill suggests that Nick contact Tetra Pak and ask to see their market research on this question. Most of Tetra Pak's film for all of North American is made at a plant in Aurora, Ontario (near Toronto). A plant in Denton, Texas, specializes in the new re-cap packaging. The Natura soymilk line is made more for the supermarkets in Quebec, which sell 10-15% of the total volume. In British Columbia a lot of soymilk is sold in supermarkets. Nick feels his new-formula Nutrisoy soymilk will give him a big advantage over Edensoy. Eden has to pay a 5% duty on soymilk shipped into Canada, plus large transport costs. So a Canadian distributor receives Edensoy at $19 a case, versus only $13 a case (32% less) for Nutrisoy. Nick is concerned that Edensoy is coming out in a re-cap package.

Tofu: Nutrisoya is the largest tofu manufacturer in Eastern Canada, but Sunrise is the largest tofu maker in all of Canada. They now makes 3 types of tofu, all curded with magnesium chloride and extra firm in texture: Natural, Fine Herbs *(Fines Herbes)* and Pimento & Onion *(Piment-Oignon).* The two flavored products were introduced in about 1990. They do not make an almond tofu. They package all their tofu products with a $120,000 Multivac vacuum packaging machine that they own. He likes vacuum packing; Nutrisoya sells a lot of their tofu to supermarkets, and this packaging seems to give a longer shelf life and a neater package. He also plans to buy a water-pack machine.

Nutrisoya makes most of its money from its tofu products; the competition in the soymilk market from Eden Foods and Pacific Foods (who Nick believes is dumping product in Canada) leads to low profit margins. Plans for new tofu products: Nick would like to introduce soft tofu curded with calcium sulfate. Most Caucasian Canadians now buy tofu curded with magnesium chloride (nigari); it is now a $1.4 million market. Note: Most of the tofu sold in the USA is curded with calcium sulfate because it is a good source of calcium, and is less expensive and much easier to make. Address: President, Nutrisoya Inc., 4050 Pinard, St.-Hyacinthe, QUE, J2S 8K4, Canada. Phone: 514-796-4261.

2276. Nicholls, Walter. 1995. Foraging: Burgers without the beef. *Washington Post.* May 17.

• ***Summary:*** There are two basic kinds burger alternatives: Those designed to taste like beef and those which are simply a vegetarian patty. True vegetarians often prefer the latter. The author found that alternative burgers are grilled

or sautéed in a nonstick skillet with lots of good stuff piled on top. He did a taste test, and rated the many brands into three categories: Exceptional: Boca Burgers (Chef Max's Favorite, Fresh Garlic, Original), Morningstar Farms (Garden Vege Patties, Grillers; [made by Worthington Foods]), Wholesome and Hearty Foods (Gardenburger, GardenMexi).

Acceptable: Amy's (Organic California Veggie Burger), Green Giant (Harvest Burgers), Ken & Roberts (Veggie Burger), Morningstar Farms (Better 'n Burgers), Natural Touch (Garden Grain Pattie), Yves Veggie Cuisine (Burger Burgers).

Forgettable: Lightlife (American Grill, Light Burgers), Mudpie (Veggie Burgers), Soy Boy (Courage Burger, and Veggie Sizzler), Woodstock Whole Earth Foods (The Better Burger), Yves Veggie Cuisine (Vegetable Patties). Photos show packages of the three Exceptional brands. Address: Washington, DC.

2277. Cooper, Kim. 1995. Re: Canadian exports for food uses. Letter (fax) to William Shurtleff at Soyfoods Center, May 25. 1 p.

• ***Summary:*** "For the 1993 crop, Ontario exported approximately 500,000 tonnes, and my guess would be about 50% would be for food use. For shipments to East Asia, I would say the vast majority, perhaps 90% plus, would be for food use." Address: Marketing Specialist, OSGMB, Chatham, Ontario, Canada N7M 5L8. Phone: (519) 352-7730.

2278. Wan, Helen. 1995. Brief history of Les Aliments Tarasoy Ltée in Brossard, Quebec (Interview). *SoyaScan Notes.* May 26. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** This company was founded in Dec. 1986 by her brothers, who are Chinese-Canadians and who own shares–but it is not just a family business since other people also own shares. Her brother, Billy Chin, is the president and one of the main founders. Helen has been employed by the company since the beginning as sales manager; she was born in Canada, and educated in English-speaking schools, though she also speaks French. The name of the company, Tarasoy, is derived from the name of a person they know, to which they added the word "soy." The company's first products were introduced in the spring of 1987. These included: SoftShakes (a soya drink in chocolate and vanilla flavors, and in single serving sizes), Regular Tofu *(Tofu Nature),* Herb Tofu *(Tofu Fines Herbes),* and Tofu with Dehydrated Vegetables *(Tofu au Legumes).* Their tofu products are all sold in 450 gm vacuum packs. The vacuum packaging gives a longer shelf life. Regular (plain) tofu is now the company's number 2 best-selling product.

In 1988 they introduced *Soyolait,* a 1-liter soya drink that is presently the company's best-selling product and also the best-selling fresh soymilk in Quebec. It is sold fresh in Pure-Pak cartons, and has a remarkable 21-day shelf life at 3ºC. The product is made and packaged entirely at their plant. It is sweetened with barley malt extract and sold only in Quebec, and mostly at natural food stores. It is consumed by Caucasian-Canadians rather than by Chinese-Canadians (who prefer a sugar-sweetened product). Soyolait is less expensive than Edensoy, since the packaging is less expensive. Many other Chinese companies in Canada make fresh sugar-sweetened soya drinks, sold in plastic bottles. At about the time Soyolait was launched, SoftShakes was discontinued; It had limited appeal as a single portion novelty drink, whereas Soyolait came in a larger carton and was more versatile, since it could be used for cooking, baking, etc.

In 1993 the company launched *MagiSoy,* a soy cheese, that they make in-house; it melts.

In Nov. 1994 they introduced *Rizoleil,* a rice drink–which is the company's only product not made from soy. Helen does not know whether the rice drink is made with the traditional koji fermentation process or with enzymes. It is sold fresh, packaged in 1-liter Pure-Pak cartons, with a remarkable 20-day shelf life.

One of the major focuses of the company is selling fresh products. This requires that they distribute all their own products. They have excellent quality control. Most of their products are sold in natural- and health food stores, and very little in Oriental food stores. The company has about 20 employees (both Chinese- and Caucasian-Canadians), but they keep a low profile. They have very good people in their research and development department, which is why they have interesting fresh products with a log shelf life.

They are always developing new products which they plan to introduce within the next 6 months, but information on these is confidential until the products are launched. Helen does not have a brochure about the company or its products. Several years ago a French-language article about the company was published. Address: Sales Manager, Les Aliments Tarasoy Ltée (Tarasoy Foods Ltd.), 3455 Local D rue Isabelle, Brossard, QUE J4Y 2R2, Canada. Phone: 514-659-6586.

2279. *Bluebook Update (Bar Harbor, Maine).*1995. ProSoya forms Soyfood Alliance: Canadian dairies and soymilk supplier agree to work together. 2(2):1, 4. April/June.

• ***Summary:*** This agreement, now known as the "Soyfood Alliance," was signed by ProSoya, Inc. of Ottawa, Canada, and three Canadian dairy processors–Neilson Dairy, Fieldfresh Farms, and Gelato Fresco. It is seen as the first step in an effort, assisted by the Canadian government, to bring high quality, fresh soymilk products to the North American market. Emphasis is on the word "fresh."

To take advantage of equipment already available in the dairies, fresh soymilk is being pasteurized in traditional "gable-top" dairy cartons rather than Tetra Brik cartons. This can save the processor 30-50% in packaging costs. It is hoped that the product will retail for just slightly more than cow's milk.

Currently Neilson and Fieldfresh are producing flavored organic soymilk, while Gelato Fresco is making soy-based frozen desserts.

A photo shows members of the Soyfood Alliance: Tom Reynolds, Alliance Coordinator; Peter Warmels, General Manager of Fieldfresh; Ralph Goodale, Canadian Minister of Agriculture; Melvin Hart, President of Gelato Fresco; Walter Parsons, Sr., Vice President of Neilson Dairy; Frank Daller, President of ProSoya Inc.

Talk with Raj Gupta of ProSoya. 1995. June 6. These companies are now developing and test marketing products containing ProSoya soymilk. Raj expects commercial products to be available by August or September 1995.

2280. Packaged Facts. 1995. The meat and dairy alternatives market (Continued–Document part II). New York, NY: Packaged Facts. xii+ 162 + 42 + 6 p. May. 28 cm.

• ***Summary:*** Contents: Continued from p. vi. Part III: The Marketers. Competitive situation–meat alternatives (Worthington pioneers Seventh-day Adventist vegetarian market, Miles Laboratories acquires Worthington–places Morningstar Farms in mass market, tofu drives natural foods market, soy frank marketers exploit tofu opportunities, tempeh–another meat alternative ingredient gains interest, wheat-based alternative seitan expands presence, Worthington places tofu patties in natural foods stores–changes hands again, Wholesome and Hearty develops foodservice distribution, meatless burger market heats up, pattie competition fierce in natural foods arena, ADM/Pillsbury alliance brings soy burgers to mass market, Worthington fights back, category differentiates in the early 1990s, soy attacked by soy-free burger companies, meat alternative marketers cut the fat, low-fat sausages and franks, tightly targeted vegetarian fun foods and snacks, mass-market companies introduce ground meat analogs, natural product companies follow suit, Wholesome and Hearty seeks retail growth, others seek lucrative foodservice market), competitive situation–milk substitutes (early market limited to ethnic community, Edensoy a big hit–Vitasoy responds, new lines introduced, competition–domestic manufacturing and larger containers bring down soy beverage prices, flavors and packaging distinguish early products, Westbrae introduces first low-fat soymilk, fortification has become key selling point, Eden's fortified product suits strict vegetarians, new package sizes expand market, re-closable–easy to pour, rice beverages–line extensions grab shelf space, Wholesome and Hearty's almond beverage, 100% organic products, a fresh–new market–some products shift to dairy case, mass-market interest), competitive situation–cheese alternatives (Seventh-day Adventists start category, first natural foods cheese alternative not dairy-free, handful of marketers compete on price in natural foods arena, new products parallel dairy-based mass market, a move toward lower fat and fat-free, seeking the most melt-able cheese, Sharon's finest finds innovative ingredients, marketers target vegan market), competitive situation–non-dairy desserts (Toffutti dominates, dairy-free puddings–one major player, non-dairy yogurt has yet to catch on), competitive situation–prepared meals (flavored tofu and seitan expanded into meals, Legume is early innovator, cheese alternatives in prepared meals, other companies dive into prepared meals, action has been in natural foods, supermarket products have not succeeded), competitive profiles (The Archer Daniels Midland Co.–Grand Metropolitan PLC–Pillsbury division partnership, Amy's Kitchen Inc., A&A Amazing Foods Inc., Boca Burger Co.–Sun Foods, Eden Foods Inc., Fairmont Foods of Minnesota Inc., Fantastic Foods Inc., The Hain Food Group Inc., Imagine Foods Inc., Lightlife Foods Inc., Sharon's Finest, Tofutti Brands Inc., Vestro Natural Foods Inc., Vitasoy–USA Inc., White Wave Inc., Wholesome and Hearty Foods Inc., Worthington Foods Inc., Yves Veggie Cuisine Inc.), marketing trends (updated packaging, burger market segmenting into natural and mass market, Worthington–a master at working both markets, hamburger look-alikes crossing back into natural foods, veggie patties crossing into mass market, nostalgia–creating brand loyalty, marketers expanding into other categories, moving into the frozen breakfast section, retail displays, pushing into new distribution channels), new product trends (new–improved packaging, light and healthy, product names emphasize healthy, fat-reversal–mass-market burger-substitutes gaining fat, ground meat alternatives, new flavors and varieties–many gourmet and upscale, ethnic–especially Mexican and Southwestern, convenience, technology produces better mimics, mixing soy with grains and other ingredients, mainstreaming health foods, natural ingredients preferred–organic even better, selected new product introductions–meat and dairy alternatives–1994-March 1995–chart), advertising expenditures (most advertising not measured, specialty magazines are preferred medium, radio is another alternative, little consumer advertising, Worthington outspends competition, ADM-Pillsbury spends millions to launch Harvest Burger in 1994, Edens Foods targets mass market, Fantastic Foods' first major spending), advertising positioning (good health is overlying theme, and fat is prime concern, vegetables are a solution to a bad diet, milk substitutes advertised to lactose-intolerant market, highlighting a sense of the familiar, foods children love, traditional burger images used to woo mass market, vegetarian appeal used for meatless patties, organic is

important feature in natural foods, examples of consumer advertising), consumer advertising (consumer promotions not heavily used, money-off coupons from several companies, new lines offer more generous rebates, recipes and books educate consumers, in-store promotions–the White Wave Center, marketers join forces in advertorial, sponsoring sports events–a healthy fit, 25 years of earth day, non-profit tie-ins, Turtle Island's recycling program, other types of promotions, examples of consumer promotions), trade advertising and promotions (three key trade publications, trade ads also used as consumer ads, trade ads scheduled to run in convention issues, trade ads announce growing business, editorial promotions, reaching retailers, example of trade ads). Continued.

2281. Packaged Facts. 1995. Retail sales of meat alternatives: 1989-1994 (in million dollars) (Document part). In: Packaged Facts. 1995. The Meat and Dairy Alternatives Market. New York, NY: Packaged Facts. 162 + 42 + 6 p. See p. 17, 19, 51-52. May. 28 cm.
• ***Summary:*** A graph (p. 17) shows that sales of meat alternatives (in million dollars) rose from $69.8 in 1989 to $85.7 in 1991 to $115.5 in 1993 and $131.6 in 1994. The average annual sales growth for this period was 13.6% In the past two years, however, sales of meat alternatives have increased by 15.2 and 18.0%.

Concerning the accuracy of these figures, page 19 notes that sales in these markets are difficult to quantify because a large share of retail dollar volume moves through natural foods stores, where sales are mostly untracked, and because various information sources define meat and dairy alternatives products differently. Therefore these "estimates are based on information provided by Soyatech, Inc., the Soyfoods Center, Information Resources, Inc., the natural foods trade, and various manufacturers."

A table (p. 51) shows the market shares of major manufacturers of meat alternatives sold through supermarkets (NOT including natural food stores) in 1993 and 1994. The 1994 market shares were as follows: Worthington Foods 64.5% (Morningstar Farms brand 63.8% and Natural Touch brand 0.7%). ADM/Pillsbury 21.8% (up from only 8.0% in 1993). Wholesome & Hearty Foods (Garden products) 7.9%. Yves Veggie Cuisine 2.1%. Sun Foods (Boca Burger) 1.4%. Other 2.3%. Source: Information Resources, Inc.; Packaged Facts.

A second table (p. 52) shows estimated market shares of major manufacturers of meat alternatives sold through natural food stores in 1994: Worthington Foods 30.4% (Natural Touch, Loma Linda, Worthington brands). White Wave 9.8%. Lightlife Foods 6.5%. Yves Veggie Cuisine 5.8%. Wholesome & Hearty Foods (Garden products) 4.8%. Fantastic Foods (Nature's Burger) 3.9%. Sun Foods (Boca Burger) 3.0%. Other 35.8%. Source: Packaged Facts.

Wholesome & Hearty Foods (Portland, Oregon): In March 1985 this company introduced the Gardenburger, a non-soy vegetarian patty into natural foods restaurants and college cafeterias. Foodservice remains Wholesome & Hearty's core business and accounts for about 70% of the company's sales. Today, over 22,000 foodservice outlets offer the company's various meatless patties (p. 59). In 1992 Wholesome & Hearty began an aggressive drive to introduce its Garden products line into retail stores–both natural foods and mass market.

2282. Melvin, Hart. 1995. Why it is difficult to launch a soy ice cream in Canada (Interview). *SoyaScan Notes.* June 8. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** First, the entire frozen dessert industry in Canada has been exclusively the domain of the big dairies. The dairies were subsets of the Marketing Board–which creates a totally different market environment than in the USA. Canada has a relatively small population (10.7% of the U.S. population; 28.1 million vs. 260.7 million in the USA) and it is spread over a land area that is slightly larger than that of the USA (including Alaska). So a company needs to have a significant product line to pay the costs of distribution and to pay the large "listing fees" required to get onto supermarket shelves. It has only been in the last 10 years that any small companies have even attempted to developed frozen dessert products. It is difficult to start a company in Canada making soy ice creams because the market is so small and dispersed. You can't start a company in Canada with your initial target market in the USA. Now Canadian supermarkets are trying to establish individual identities, and one of the ways they do that is by bringing in specialty products, either as is or under their own brand and label. Both his soy and dairy products are in most of the major supermarkets in Canada under their own label–simply because his company is offering unique products not made by the big guys, and these products make the supermarket more competitive with the boutique.

The second reason has to do with Canadian bilingual labeling laws. If you have a half liter or pint carton or tub, you have very little surface area, so you can't get overly descriptive. If you want to make claims (such as "cholesterol free") then you must do fat analysis, and that has to be presented in both French and English. So you quickly run out of space on the label. So a small company has generic nutritional information on the body of the package, with flavor-specific information on the lid only. This saves printing costs. So the bilingual label restricts a company's ability to make claims, and it hurts small companies more than big ones. The smaller the package size, the bigger the problem. His soy ice creams make a "cholesterol free" claim and print the fat analysis in two languages.

One new development in Canada (within the last 10 years) is the public awareness of lactose intolerance; this makes it easier to market non-dairy ice creams. Address: Product Manager, Gelato Fresco, 60 Tycos Drive, Toronto, ONT M6B 1V9, Canada. Phone: 416-785-5415.

2283. Reuters. 1995. Rotting beans make sweeter feet. *Toronto Star (Ontario, Canada).* June 20. p. A16.
• ***Summary:*** A Japanese biotechnology firm named Capital Corp. (president Tsutomu Harada) has launched a product (Niowan 201) using natto bacteria to remedy acute foot odor. Natto, sticky fermented soybeans, are widely eaten with rice for breakfast in the northern half of Japan.

The company, based in Osaka, "combines dormant natto bacteria with sawdust and rice bran into thin packs worn under the feet. The other ingredients preserve the bacteria until they are activated by the heat and humidity of the feet, neutralizing the bad smell."

2284. Lewis, David L. 1995. Henry Ford and the magic beanstalk. *Michigan History.* May/June. p. 10-16.
• ***Summary:*** Much of this interesting presentation is taken from a paper by the same title presented by the author on 6 Dec. 1991 to the Ontario Soybean Growers' Marketing Board. This, in turn, is based the author's original and very authoritative book, *The Public Image of Henry Ford* (1976, see p. 282-85). On the first page, the author writes in a sidebar: "Henry Ford is most remembered for the Model T, mass production, and the five-dollar day, which doubled his workers' pay. But he should equally be remembered for his extensive soybean experimentation and research into plastics–his last great achievement and the work that delighted him most."

Contains 8 good photos related to Ford's work with soybeans. The caption accompanying the famous photo of Ford taking an axe to the back of a black car reads: "Henry Ford takes an axe–only a blur in this photo–to the dent-resistant plastic trunk lid of his personal 1940 Ford. Keeping his axe in the trunk of his car, the magnate routinely swung on the lid to impress guests. He hit it one too many times when showing off before Walter P. Chrysler and caused a fracture in the lid similar to the splintering of a piece of green wood. Unfazed, Ford praised the ability of the lid to absorb as much impact as it had." Address: Prof. of Business History, Univ. of Michigan, Ann Arbor, MI 48109-1234. Phone: 313-764-9540.

2285. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. ProSoya forges alliance with dairy processors. June. p. 6.
• ***Summary:*** ProSoya recently formed a "Soyfood Alliance" with three Canadian dairy processors: Neilson Dairy, Fieldfresh Farms, and Gelato Fresco. A photo shows Raj Gupta of ProSoya with the smaller version of his original "SoyaCow." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2286. Webster, Donovan. 1995. Green days: How I became a vegetarian for one trying month and changed my life and health forever. *Men's Health.* June. p. 116-20.
• ***Summary:*** The author struggled through a vegetarian diet for one month, losing 9 pounds and the roll of fat around his belly. He ate quite a few meat alternatives. When it was over he felt like he was "on the horns of a dilemma. Vegetarianism had, obviously, been good for me–and it hadn't been that difficult. Yet I also knew that, long term, the carnivorous pleasures of meat-based life would drag me back into the darkness of their cave. So I struck myself a bargain. For two months out of every year, one in the spring and one in the fall, I would be a vegetarian. The rest of the year I'd eat meat when I wanted to, but I'd still endeavor not to do it all the time."

A sidebar by Greg Gutfeld titled "The Meatless Market" begins: "Time was, a vegetarian had to make do with sprouts, tofu, and voting for McGovern. But new to the supermarket shelves are numerous meatless items mimicking our favorite animal-derived pleasures–even things like hot dogs, hamburgers, bacon and deli meat." The following products were tasted and are evaluated as "Hey, not bad": Worthington Chik Stiks, Worthington Stripples, Garden Gourmet Vege-Nuggets, Boca Burger (the best liked), Worthington Stakelets, Lightlife Fat-Free Meatless Smart Dogs, Garden Mexi Patties.

The rest were "No, thanks, we'll pass": Worthington Meatless Salami, Natural Touch Lentil Rice Loaf, Yves Veggie Tofu Wieners, Yves Veggie Pepperoni, Lightlife Italian Lean Links, Lightlife Organic Three Grain Tempeh, Bearitos Vegetarian Chili.

2287. Montanaro, Pamela. 1995. New developments with soybeans and soyfoods in Cuba (Interview). *SoyaScan Notes.* July 26. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Pam Montanaro, Coordinator of the Cuba Campaign Department of Global Exchange (GX), returned from the sixth Freedom to Travel Challenge trip to Cuba June 23-30, where a general contract was signed between the *Instituto de Investigaciones Fundamental en Agricultura Tropical (INIFAT)* and another GX-sponsored project, the Soy Cubano Company (SCC).

The SCC will fund a small project in soybean production, helping the Cubans to become more self sufficient in soybeans while challenging the U.S. embargo against Cuba. The project will start small, with a 13.4 hectare (one *cabellería* plot) in Havana province, this August. Two to three varieties of soybeans will be grown to produce enough seed to plant 20 *cabellerías* next year, 19 *cabellerías* worth will be sold to the soyfood factories for

soyfood production; one *cabellería* will be reserved for planting the following year.

Also on this trip Pam met a very fine and interesting man named Dick Strohl who is an American soybean farmer and businessman from Minnesota; he is now negotiating with the Ministry of Agriculture and *INIFAT* to grow soybeans in Cuba.

The SCC also delivered a computer and modem to Ing. Alvaro Garcia, director of the *Instituto de Investigaciones para la Industria Alimenticia* (IIIA; Food Research Institute) which is developing varieties of soyfoods for domestic consumption.

Frank Daller of ProSoya Inc. (based in Ontario, Canada) will be traveling to Cuba on July 30 for one week to explore investment opportunities in the field of soyfoods–especially soymilk. Frank is the new director of the Canadian branch of the U.S.-based Association for Free Trade with Cuba (AFTC); it was started by Global Exchange in the spring of 1994, immediately after the U.S. lifted the embargo against Vietnam to get the progressive business community interested in working to end the embargo and in investing in worthwhile projects in Cuba such as soyfoods, alternative energy and medicine, and organic agriculture.

In June, at an international exposition, Pam was introduced to a new soy product developed in Cuba–a Chorizo (spicy meat sausage) extended with soy protein, as is or in a pastry blanket, sort of like a corn dog. The Food Research Institute was also exhibiting the other soy products it has developed, including some meat alternatives.

Pam also had a brief meeting with Ing. Elisa Panadés, a women who is a vice director of the Food Research Institute (like Alberto is); she stands in for Dr. Alvero Garcia when he is away. She was very interested in the information on genistein in soybeans compiled by Soyfoods Center. Her main interest is medicinal properties of food.

Another interesting man Pam met was Dr. Gilberto Fleites (pronounced hil-BAER-toe FLAY-tees), M.D., a cancer surgeon at the Instituto Nacional de Oncologia y Radiobiologia (office phone: +53 7-325977; he lives in Miramar, Havana). He has gotten permission from John Robbins to translate *Diet for a New America* into Spanish. He speaks good English and is also showing John Robbins' videotapes on Cuban television. Pam's group gave him a small grant to start working on a half-hour video in Cuba, with a Cuban videographer, on vegetarianism. On Pam's trip to Cuba in June were three young people who had been raised as vegetarians. Dr. Fleites interviewed the vegetarian youth on film, saying: "Most Cubans have been forced into a primarily vegetarian diet by the U.S. blockade and the loss of their primary trading partners. It is important for Cuban parents to see these healthy vegetarian children on film, because they are very worried that you cannot raise a healthy child without meat and dairy products."

On the July trip Pam also met with some very interesting people who are working on projects in solar energy, wholistic medicine, chiropractic, and Chinese medicine. Dr. Marcos Diaz Mastellari has founded the Center for Holistic Medicine and the International Federation of Holistic Medicine (Ave. 25 No. 15805 entre 158 y 160, Havana, Cuba. Phone: +53 7-336356. Fax: 332420).

Update. 195. Oct. 30. Pam has been in touch with Oxfam Canada; their representative Minor Sinclair has gotten involved in some soy projects in eastern Cuba and wants to work more with Global Exchange. Dick Strohl has some good ideas. Address: Coordinator of Soy Cubano! Company, Food and Medicine Campaign, c/o Global Exchange, 2017 Mission St. #303C, San Francisco, California 94110. Phone: 415-255-7296 or 415-558-8682.

2288. Strohl, Dick. 1995. Trying to grow soybeans in Cuba (Interview). *SoyaScan Notes.* July 27. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** In 1991 the Ministry of Sugar in Cuba planted about 15,000 acres of soybeans in Cuba. The result was a total failure. Dick thinks the reason they did this was after the Soviet Union broke up and Cuba no longer received much money from the Soviet Union to keep their sugar business going, they decided they needed another export to earn money. Sugar is the most important crop in Cuba, and an essential part of the economy and culture. They produce excellent quality sugar with excellent yields at very competitive prices. They think that sugar has a future, but Dick feels that it has no future. Cuba is not making any money growing sugar now. Other countries like Brazil can grow sugar less expensively than Cuba and high fructose corn syrup is eroding sugar's market world-wide.

Cuba presently imports $50 million of soybeans a year, mostly from Argentina, with some from Canada. The Government of Cuba and the Central Bank (which are essentially the same). They must pay for these soybeans in hard currency (U.S. dollars), which they get from tourists. Dick is working in Cuba to grow soybeans, primarily to make money but also because he greatly enjoys working in Cuba. There is a strong local demand for soybeans. He is not trying to train Cubans how to grow soybeans. "If they catch on, that's fine; if they don't, they don't." He plans to get a long-term lease on land in Cuba. "It's the best land I've ever seen in my life." Two or three years ago, the Cubans tried to grow large acreages of soybeans when they realized they would need them if production of soyfoods was to increase dramatically. Unfortunately the whole farming project failed and Cubans don't like to talk about it. The person who knows the details is a U.S. soybean farmer and agronomist named Dick Stroh, with whom Pam talked during her visit in June and who she found to be a fascinating, really good guy. He has been there working

with INIFAT (Institute for the Fundamental Investigation of Tropical Agriculture, "Alejandro de Humboldt," Calle Ira Esq 2, Santiago de las Vegas, Ciudad de Habana, Cuba. Fax: 536-83-2392) during the last year, and he thinks Cuba should be growing large amounts of soybeans. Pam thinks he got into Cuba through a company in Jamaica that wants to set up a soybean crushing facility. He thinks he can help Pam and Cuba get used planters and harvesters into Cuba on a cargo ship or on the Caravan. Address: 2648 Inglewood Ave. South, Minneapolis, Minnesota 55416. Phone: 612-929-7649.

2289. **Product Name:** BBQ Tofu, Curry Tofu, Seitan Nugget, Satay Seitan.
**Manufacturer's Name:** Smart Choice Foods (Totally Vegetarian):
**Manufacturer's Address:** 117-119 Ave. B South, Saskatoon, Saskatchewan, S7M 1M2 Canada Phone: (306) 242-3070.
**Date of Introduction:** 1995. July.
**Ingredients:** Soybeans; Wheat gluten.
**How Stored:** Refrigerated.
**New Product–Documentation:** Leaflet (glossy, color, 3-fold front and back) and price list. 1996? Smart Choice Foods. This company was founded by Yen Fung. She was raised in rural Saskatchewan and completed her education at the University of Saskatchewan. "Her interest in the Canadian food industry began with the purchase of Mom's Bulk Foods in 1985. By 1988 it had moved to a mall location and more emphasis was placed on health food supplements. Later the same year she expanded her growing company by opening the Genesis Family Restaurant cited by the *Globe and Mail* as the best Chinese and health food restaurant in Saskatoon. 1995 marked both the opening of Smart Choice Foods and the acquisition of the catering firm Deli Fresh Foods. All of these businesses fill a market niche and continue to expand based on Yen Fung's underlying principle 'healthy, quality food for people who don't have time to cook.'"

2290. Vitasoy International Holdings Ltd. 1995. Annual report 1994-95. New Territories, Hong Kong. 92 p. July. 30 cm. [Eng; Chi]
• ***Summary:*** For the fiscal year ended 31 March 1995, group turnover (sales) was HK$1,252 million, up 9% over the previous year. Operating profit was $138.9, up 12%. Earnings per share were 24.0 cents, down 12%. Dividends for the year were 9.6 cents. The price of one share is now about $HK2.69.

The Group has secured local government approval to establish a wholly foreign owned enterprise in Songjiang Industrial Zone of Shanghai and will soon begin construction of a production facility there, investing about HL$228 million in it. About 90% of its output will be sold in Eastern China.

The founder and guiding force for more than 50 years, Dr. K.S. Lo, passed away in May of 1994. "The success of the Group is a reflection of the strong Confucian morals which Dr. Lo worked so hard to instill." In Hong Kong, Vitasoy soymilk saw a slight decrease in sales.

In North America, Traditional Vitasoy soymilk [marketed to Chinese Americans] benefited from ethnic brand loyalty together with the continued migration from Hong Kong and Taiwan to North America and especially Vancouver, BC, Canada. This helped improve overall sales in the North America market with 11% increase over the previous year. Natural Vitasoy soymilk experienced a slight drop in sales in the U.S. market but made strong gains in Canada. The launch of Vitasoy Chocolate Soymilk played a role in lifting the market share of soymilk in the Chinatown districts from 50.4% to 52.5%. The Group plans to introduce a new family-sized fresh soymilk. Tofu sales in North America recorded growth of 13.6% with the strongest push coming from the East Coast ethnic markets. To help make consumers more aware of the many benefits of tofu, the Group has sponsored the highly acclaimed "Yan Can Cook" program. In addition an 8-minute instructional video titled "Cooking with Tofu" has also been produced. The huge multi-billion dollar pasta market, of which Oriental pasta is one of the fastest growing segments, will be a key focal point for us over the next fiscal year.

Employees: 1,582 at the end of March 1995, up 13.8% Over the previous year.

Use of the $270.2 million for the initial public stock offering: (1) $228 million to develop a wholly foreign-owned production facilities in Shanghai, PRC (China); (2) $40 million for the development of this factory's distribution network in PRC and Hong Kong; (3) $60 to install a distilled water production facility at its existing facility at Guang Ming Farm, Shenzhen.

Color photos show: Winston Lo, Executive Chairman and Managing Director. Three natural Vitasoy soymilk products, Azumaya Asian products, 3 water-packed tubs of Vitasoy Chinese-label tofu, and Nasoya brands (silken and soft tofu), 3 bottled dressings, and Nayonaise. Address: No. 1, Kin Wong Street, Tuen Mun, New Territories, Hong Kong. Phone: 466 0333.

2291. Bruning, Fred. 1995. Ode to soy: The culture of a bean and its followers. *Newsday (Long Island, New York).* Aug. 9. Part 2. p. 4. Wednesday.
• ***Summary:*** On the cover of this cover story appears: "Soy, you wanna be a star? As headlines proclaim its cholesterol-lowering benefits, the once-lowly soybean finds its place in the spotlight." Note: This article was syndicated; on 16 Aug. 1995 it appeared in the Times Colonist (Victoria, BC, Canada). Address: Staff writer.

2292. *Toronto Star (Ontario, Canada).*1995. Metro shrinks [as Victory Soya Mills is demolished] (Photo with caption). Aug. 18. p. E1.
• ***Summary:*** In the background is a partly demolished silo, still standing. In the foreground is a wrecking machine. The caption reads: "Joe Carreiro, left, directs demolition work yesterday at Victory Soya Mills on Queens Quay. Levelling of the mill, built in 1944, is further evidence of Metro [Toronto's] shrinking tax base."

2293. Cunningham, Dusty. 1995. Recent developments at Pacific ProSoya in Vancouver, Canada (Interview). *SoyaScan Notes.* Aug. 23. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** On Aug. 14 the company made its first successful batch of soymilk. They are presently selling only bulk soymilk. Since a spray drying operation is located nearby, they would like to offer spray-dried soymilk as well. They are selling bulk soymilk to three different companies in British Columbia which are each developing different non-dairy products: One is developing soy ice creams, the second soy yogurts, and the third soy puddings.

She just had a visitor to the plant from a big distributing company in France. He was comparing their soymilk with French brands. Address: Vice-President Marketing, Pacific ProSoya Foods Inc., 312-19262 60th Ave., Surrey (Vancouver), BC V3S 8E5, Canada. Phone: 604-532-8030.

2294. MacLeod, J.A.; Gupta, Umesh C. 1995. Effect of selenium seed treatment on selenium concentrations in soybeans. *Canadian J. of Soil Science* 75(3):287-291. Aug. [21 ref. Eng; fre]
• ***Summary:*** This research was conducted on Prince Edward Island (PEI), Canada. An application of 10 gm of selenium (Se) per hectare as seed treatment raised soybean selenium concentrations to more than 0.5 mg/ha. Soybeans with this level of selenium, when included in rations at 200 kg/tonne with other low selenium ingredients, produces rations exceeding 0.1 mg/kg of selenium, which is the minimum level required to prevent selenium deficiency in livestock.

Seed treatment with 100 gm/ha of selenium produced soybean selenium concentrations greater than 10 mg/ka of selenium. Even higher soybean selenium concentrations were obtained from equivalent selenium rates when applied as foliar spray.

In summary treatment of soybean seed with selenium has the potential for improving the selenium status of rations that would be formulated with ingredients originating from areas deficient in selenium. Address: Research Branch, Research Centre, Agriculture and Agri-Food Canada, Charlottetown, Prince Edward Island, C1A 7MB, Canada.

2295. *Soya Bluebook Plus.*1995-1997. Serial/periodical. Bar Harbor, Maine: Soyatech, Inc. Peter Golbitz, publisher and editor. Frequency: Annual.
• ***Summary:*** Preceded by Soya Bluebook. A directory and information book for the soybean processing and production industries. One of the most valuable sources of worldwide information on soybeans. The first issue (shipped Sept. 1995) is titled "Soya Bluebook Plus: the annual directory of the world oilseed industry." Crops featured on the front cover are "soya, corn, cottonseed, palm, canola, rapeseed, and sunflower." Contents (most sections are marked with a fold-out tab): Organizations and government agencies: White pages, yellow pages. Oilseed product processors and marketers. Equipment supplies and services. Oilseed statistics. Oilseed reference: Oilseed glossary, standards and specifications, oilseed technical charts and tables. Indexes: Comprehensive index, advertiser index.

Concerning the year: The edition published in mid-1994 was titled '94 Soya Bluebook. The edition published in mid-1995 was titled '95-96 Soya Bluebook. The edition published in Sept. 1996 (the 50th edition) was titled '97 Soya Bluebook. The change was made to give the company extra time (16 months) to market the latest edition before the next year arrived. Address: 318 Main St., P.O. Box 84, Bar Harbor, Maine 04609. Phone: 207-288-4969.

2296. National Biodiesel Board. 1995. Biodiesel demonstrations. Jefferson City, Missouri. 7 p. Unpublished typescript. Sept. 28.
• ***Summary:*** For each project / demonstration this table gives the state, city (or, in Canada, province and city), organization, contact person, number and type of vehicle, miles, start date and month, blend (% biodiesel; most are 20%), sponsor (most are NBB / USB): City / county highway fleets (18 projects), commercial truck fleets (8), farm vehicles (21), marine (10), mass transit (88), military (2), mining / confined spaces (4), miscellaneous (9), school bus (6), stationary engines (5), utilities (6). Address: Jefferson City, Missouri.

2297. Jenkins, Suzi. 1995. The politics of soyfoods in San Bartolo, Guatemala (Interview). *SoyaScan Notes.* Oct. 21. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Alimentos San Bartolo now employs 6 people, 3 or 4 of whom have worked there for 15 years. The plant operates two days a week, Monday and Wednesday. About 65-75% of the products are sold to expatriates, and the remainder are sold to native Guatemalans. The approximate percentage of sales by product are as follows: Tofu 40%, soy ice cream 30%, tempeh 10%, soymilk 10%, soy flour atole (10%; pronounced ah-TOL), and whole soybeans 5%. Yet the soy flour atole probably earns the company more profit than any other product. It is made by roasting whole soybeans, then grinding them, and mixing about 3 parts of

this roasted soy flour with 1 part of cornmeal. The product is sold as a dry mix in a plastic bag, and is served by adding several tablespoons to a cup of hot water, like traditional atole. It is expensive, costing about 2½ times as much as an equal weight of white wheat flour. People are willing to pay the price because they have learned that it is an excellent source of protein, and it tastes good. It is consumed by both infants and adults.

In about 1989 or 1990 the situation at the soy dairy in San Bartolo changed dramatically. Plenty Canada came in, took the keys to the building, and installed a new committee as the "board of directors in charge of the company. Then Plenty Canada pulled out and has never returned. Since that time the Dairy has received no outside funding. Local politics became a big part of the daily operations of the business, and there is now an ongoing political struggle. The leadership did not like the former employees and they continue to discriminate against them. Only one member of the workforce is on the committee. Elena and Agostine Xoquic are in pain. For example, Agostine is made to haul 50-100 lb of tofu and ice water on a long route that goes as far away as Guatemala City, changing buses many times, while the much younger and stronger new manager sits with his feet up on the table. The Dairy does not have its own vehicle.

Plenty USA has no control over the new committee. In addition, most of the people living in San Bartolo are jealous of the 6 people who work in the Soy Dairy, so for a number of years they have been boycotting the Dairy and its products. Suzi is inevitably associated with the old regime, even though she is very close to many people in the community. She has visited at least once a year, usually paying her own way, to check in and see how things are going. When she has worked there in recent years, it has usually been as a volunteer. This was one cause of the divorce process she is now in. She lived in Panajachel, an expatriate community about 15 minutes away by car; her daughter went to school there. She has no plans to go back there as a worker, though she would dearly love to if she could find a way to support herself.

She sees the next steps for the Dairy as trying to get the Guatemalan government to support use of the atole in the village school lunch program, and starting a restaurant in San Bartolo. She believes this basic concept or model could be duplicated and succeed elsewhere in Third World countries. She has had offers to go elsewhere in Guatemala, at good pay, to help start soy dairies. Address: 3967 South 900 E., Apt. 13, Salt Lake City, UT 84124. Phone: 801-268-2717.

2298. Albertson, Ellen. 1995. Super soy: The newest miracle food. *Self.* Oct. p. 148-151, 204. [1 ref]
• ***Summary:*** The subtitle continues: "Okay. One more time. Scientists are telling us they've found the nutritional Holy Grail, a simple food that prevents heart disease and cancer. Do we believe them? Yes!"

"Soy may be so effective that it actually crosses the line from nutritional to medicinal."

This article begins with a summary of the meta-analysis by Dr. James Anderson published in the *New England Journal of Medicine* (3 Aug. 1995). It reported soy in the diet can significantly lower high cholesterol." It also notes that: (1) "Genistein, a powerful natural chemical unique to soy," may stop the growth of cancer cells. (2) The natural estrogens in soybeans may "help alleviate postmenopausal symptoms." In Japan, where soy is typically eaten daily, there is no word for "hot flashes."

Photos and definitions of various soyfood products are given: Tempeh, soy flour, tofu, textured vegetable protein, soy milk. A section titled "15 delicious ways to add soy to your diet," gives serving suggestions for these and other soyfoods at breakfast, lunch, snack, and dinner.

A full-page table on p. 204 rates the best (B) and worst (W) of the following, with nutritional information, taste, texture, and comments: Hot dogs: B–Yves Veggie Cuisine Tofu Wieners. W–Soy Boy Right Dogs. Burgers: B–Boca Burger. W–Green Giant Harvest Burger. Sausage: Lightlife Lean Links Italian Sausage. W–Fantastic Foods Nature's Sausage. Bacon: B–Yves Veggie Cuisine Canadian Veggie Bacon. W–Lightlife Fakin' Bacon. Luncheon Meat: B–Yves Veggie Cuisine Deli Slices. W–Lightlife Smart Deli Thin Slices–Roast Turkey Style. Plain soy milk: B–Westbrae Natural WestSoy 1% fat. W–Edensoy Extra. Soy cheese: B–Sharon's Finest Cheddar Style TofuRella. W–Soymage Cheddar Style Cheese Alternative. Chili: B–Midland Harvest Chili Fixin's. W–Fantastic Foods Vegetarian Chili. Pizza: Nature's Hilights Rice Crust Pizza. W–Farm Foods Pizsoy Cheese Style. Frozen Dinners: B–Amy's Tofu Vegetable Lasagna. W–Hain Pure Foods Pepper Steak. Dessert: B–Living Lightly Chocolate Almond Non Dairy Frozen Dessert. W–White Wave Dairyless Vanilla "Yogurt."

2299. Barnard, Neal. 1995. Hormone replacement increases cancer risk. *Good Medicine (PCRM, Washington, DC)* 4(3):14-15. Fall. [10 ref]
• ***Summary:*** "The *New England Journal of Medicine* of June 15, 1995 [p. 1589-93], reported that hormone replacement therapy increases the risk of breast cancer. This was not news to most doctors. But many have continued to prescribe hormones because they feel that the benefits to the heart and bones outweigh the cancer risk. In the doctor's mind, it is a case of 'choosing your disease.' Will it be heart disease and osteoporosis from too little estrogen, or breast cancer from too much?" But there are other approaches.

"Horse hormones: The most popular estrogen product is Premarin from Wyeth-Ayerst Laboratories. Although doctors sometimes describe it as 'natural' for women, it is actually a horse estrogen. On farms in North Dakota and

Canada, 75,000 mares are impregnated and then confined from the fourth month through the end of their eleven-month pregnancy so their urine can be gathered in a collection harness. After they give birth, the mares are reimpregnated. Their foals usually end up as horse meat, and the urine estrogens are packed into pills. The trade name 'Premarin' is simply a condensation of the words 'pregnant mares' urine'–hardly a natural substance for human beings to swallow. While Premarin contains estradiol and estrone, two types of estrogen which are made in humans, it also contains an enormous amount of *equilin,* a horse estrogen that never occurs at all in humans.

"Estrogen supplements can have serious side effects... Women taking estrogen supplements have 30 to 80% more breast cancer risk than other women.

"Why are so many doctors prescribing them? Most of the push relates to osteoporosis and heart disease... About a quarter of white women over sixty have compression fractures of their vertebrae, and many develop hip fractures due to gradual loss of bone." But estrogens rarely arrest bone loss; at best, they simply slow it. Other approaches can be much more effective. Remer & Manz (1994) reported that eliminating animal protein from the diet can cut urinary calcium losses in half. Many other studies show that populations following plant-based diets have enviably low rates of hip fracture. Cutting salt, caffeine, and tobacco smoke intake can further reduce calcium losses. According to J.R. Lee (1990) a different hormone, progesterone, appears to increase bone density. "It is derived from yams or soybeans, has no side effects, and is sold without a prescription as a transdermal cream."

"Of course, it is not just estrogen pills that increase cancer risk. Estrogen production within a woman's body is increased by high-fat diets and overweight. The result is a higher risk of cancer. The National Cancer Institute reports that cutting fat to 20% of calories will reduce a woman's estrogen levels by 17%, which is a good first step in cancer prevention."

"There is no Japanese word for hot flashes: It has long been known that menopause is much easier for Asian women than it is for most Westerners. Hot flashes are reported by only about 10% of Japanese women at menopause." Bones also tend to be stronger in Asia. "Broken hips and spinal fractures are much less common. The most likely explanation is this: Throughout their lives, Western women consume much more meat and about four times as much fat as do women on traditional Asian rice-based diets, and only one-quarter to one-half the fiber. The result is a chronic elevation of estrogen levels. At menopause, the ovaries' production of estrogen comes to a halt, causing a violent drop in estrogen levels. Asian women have lower levels of estrogen both before and after menopause, and the drop appears to be less dramatic. The resulting symptoms are much milder or even non-existent. Those who enter menopause on a low-fat vegetarian diet often breeze right through it." Address: M.D.

2300. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. Soy crush expands. Oct. p. 4.
• ***Summary:*** There are only two soybean crushers in Canada, CanAmera Foods (in Hamilton, Ontario) and ADM Agri-Industries (in Windsor, Ontario). Both are investing millions of dollars to expand and upgrade their facilities. It is predicted that soybean crushing capacity in Canada will increase by 25%, to approximately 50 million bushels/year, when these improvements are finished in 1996. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2301. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. Advice for when you store or sell your soys. Oct. p. 5.
• ***Summary:*** Gives six recommendations "To make sure you receive proper payment for the soys you deliver or ship." Note that the word "soys" is starting to be used again to refer to soybeans. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2302. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. Profiles: Dennis Jackson, owner of Jackson Seed Service Ltd. at Dresden, Ontario, Canada. Oct. p. 7.
• ***Summary:*** Over the past 15 years a small but steadily growing proportion of Ontario's soybean crop has been going to small processors who use roasting, extruding, or micronizing to make "full-fat soy feeds." Ontario now has three such companies: Cold Springs Farm at Thamesford, Underwood Farms at Wingham, and Jackson Seed Service at Dresden. "The high-energy soymeal is good news for livestock producers and soybean growers alike," says Jackson. It is most widely used to feed hogs/swine, where it translates into faster growth rates and more economic meat output per square foot of barn space. Jackson's "partial-fat soymeal" typically contains 9% oil and 44% protein, and sells at a premium of $15 per tonne over typical 48% protein soymeal. Jackson also sells full-fat soymeal, but at a premium of about $100 a tonne over 48% soymeal, since the processor loses his potential income from selling the oil. It has gained a good market on dairy farms where it is fed as a small portion of the total diet.

To date, Jackson has been selling his crude, partially degummed soybean oil through brokers to feed manufacturers, who add it to high-energy chicken and horse rations. But he is looking for value-added markets ranging from specialty vegetable-oil products to new hydraulic oils, industrial lubricants, and for use as an additive for on-farm tank-mixing with chemical sprays. A photo shows Dennis Jackson. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2303. Melina, Vesanto; Davis, Brenda; Harrison, Victoria. 1995. Becoming vegetarian: A complete guide to adopting a healthy vegetarian diet. Summertown, Tennessee: The Book Publishing Co. x + 262 p. Foreword by Suzanne Havala. Index. 26 cm. [20 ref]

• ***Summary:*** An excellent vegetarian and vegan sourcebook and cookbook by three registered dietitians. Contents: Acknowledgements. Foreword. Introduction. 1. What is a vegetarian? 2. The evidence is in. 3. Without meat–exploding the myths. 4. Without dairy products. 5. Veganism: More food for thought. 6. Fats and oils: A balancing act. 7. Fiber: The gift from plants. 8. The vegetarian food guide: Putting it all together. 9. Vegetarian nutrition in the growing years. 10. Vegetarian diplomacy. 11. From market to meals. 12. Recipes: Simple treasures. Appendixes: 1. Glossary. 2. Nutrition recommendations.

This book contains a wealth of accurate, positive information about many different types of soyfoods (especially tofu) and related subjects, including tofu, soymilk, tempeh, miso, soy yogurt, soy cheese, soy sauce, tamari, and soy oil (incl. omega-3 fatty acids). Plus wheat gluten, seitan, rice milk, sea vegetables, adzuki beans (p. 66, 162), quinoa, amaranth, macrobiotics, phytochemicals, plant estrogens found in tofu and other soy products (p. 75; they may contribute to positive calcium balance and have a protective effect on the bone health of Chinese and Japanese women), dietary fiber.

Talk with Vesanto Melina. 1996. July 22. This book was originally published in Canada in May 1994 by Macmillan Canada in Toronto. A revised U.S. edition was published in Nov. 1995 by The Book Publishing Co. in Summertown, Tennessee. Address: Canada.

2304. **Product Name:** Bulk Soymilk.
**Manufacturer's Name:** Pacific ProSoya Foods Inc.
**Manufacturer's Address:** 312–19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: (604) 532-8030.
**Date of Introduction:** 1995. November.
**New Product–Documentation:** Talk with Raj Gupta and Frank Daller of ProSoya in Ottawa, Ontario, Canada. 1995. Nov. 21. Their West Coast licensee, a new entity in Vancouver, British Columbia, named Pacific ProSoya Foods Inc., has acquired the license to produce soymilk in bulk, using ProSoya technology, for the western part of Canada and the northwest USA. The milk, made in a plant which ProSoya is building for them, will be sold to food processors. It is sort of a joint venture and licensing deal.

Talk with and letter (fax) Dusty Cunningham, Vice-President Marketing, Pacific ProSoya Foods Inc. 1995. July 5. The company expects to start making soymilk next week.

Talk with Dusty Cunningham. 1995. Aug. 23. Pacific ProSoya made its first successful batch of bulk soymilk on Aug. 14.

Talk with George Conquergood of International ProSoya Corporation (IPC). 1999. May 10. The plant in British Columbia (BC) was unable to produce quality bulk soymilk until the latter part of 1995. The soymilk Dusty talks about making on Aug. 14 was never sold. Pacific ProSoya Foods sent samples to dairies and various yogurt companies (Jersey Farms) and ice cream companies (Mario Gelato in BC) in Western Canada, but they weren't getting anywhere. These companies started looking at this soymilk as just a commodity, and not a unique product, and they kept asking for lower prices. By this time, Dairyworld and Sunrise were starting to finalize an agreement–as a result of an information leak from IPC to Peter Joe of Sunrise. Small amounts (about ten 55-gallon barrels/drums) of soymilk made in BC were first sold to Ted Nordquist of TAN Industries in about Nov. 1995. The first bulk shipment went to Ted in Jan. 1996. Then very small amounts of bulk soymilk was sold to Jersey Farms. Ted and Jersey Farms were the only two companies that bought this bulk soymilk. But this was not what ProSoya's plan called for. They were talking with Tom Reynolds and cow's milk dairies in eastern Canada. Tom and Frank were working with Neilson Dairy and Fieldfresh Farms. When IPC entered the scene in 1994, ProSoya was just starting to task with these people, but they had a whole business plan which Lorne Broten bought into. They were going to have packaged product with Neilson and Fieldfresh, and they were going to give us samples of this packaged product, which we, in turn, were supposed to introduce to Dairyworld–the big dairy on the West Coast. "When they saw the Neilson package, they were expected to fall all over us, and we would be selling them soymilk at the same price that Frank would be selling to the dairies in eastern Canada." But the plan didn't work out that way. First, ProSoya never got a firm deal in the east. Gelato Fresco got their own SoyaCow SC-20, and used it to make the first soymilk that ended up in their soy ice cream; later they bought some bulk soymilk (about 1,000 liters at a time) from the ProSoya plant in Ottawa, which also sent samples of soymilk to Neilson and Fieldfresh for testing–but they never marketed a commercial product. The only company that ever marketed a product–soy ice cream–using soymilk from the Ottawa plant was Gelato Fresco.

2305. Vitasoy International Holdings Ltd. 1995. Interim report 1995. New Territories, Hong Kong. 14 panels. Nov. 29. 21 cm. [Eng; Chi]

• ***Summary:*** For the six months ended 30 Sept. 1995, sales (turnover) were HK$750.2 million, up 14.4% over the same period last year. Operating profit was $77,370, up 9.5%. Earnings per share rose to 13.3 cents, up 8.1%. In Hong Kong, which contributed 70% of the group turnover, sales were up 14%, but sales of soymilk products in this market are stagnant.

In North America, the company's second biggest market, sales showed a 9% increase, to be in excess of HK$128 million. Sales of pasta and tofu were particularly strong. "This market benefits from the strong brand recognition among Hong Kong immigrants, an example being the strong sales increase of Traditional Vitasoy Soyamilk in Canada."

In China, the Shenzhen facility is now fully operational and this contributed to a robust sales increase of 63%. The Shenzhen has already started to make a small contribution to Group profits in its second year of operation.

See also article in the *South China Morning Post* (Hong Kong) of Nov. 30 (Business section, p. 2). Address: No. 1, Kin Wong Street, Tuen Mun, New Territories, Hong Kong. Phone: 466 0333.

2306. Bourelly, Thomas. 1995. Plans to start a soymilk plant in Haiti (Interview). *SoyaScan Notes.* Dec. 19. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Thomas is a native of Haiti who speaks fluent English and has been educated in the USA. He has undergraduate degrees in chemistry and biochemistry (from Illinois Institute of Technology), and an MBA. He has run several food companies in the USA. Now he is planning to return to Haiti where he will start a soymilk factory. He has already purchased the land.

Update. 1996. April 3. Thomas calls. He is still as interested as ever in this project, but cannot figure out how to get soymilk with a long shelf life that is not refrigerated and not too expensive.

Update. 1996. August 13. Thomas calls. He is getting ready to order a SoyaCow 400 liter/hour system from ProSoya in Canada. Two problems remain: (1) A type of packaging that is low in cost. Shurtleff recommends he ask ProSoya to solve this problem. (2) A source of flavors. His product is designed to replace Carnation Evaporated Milk, which has a caramelized taste. Haitians prefer vanilla, chocolate, and strawberry flavors. Shurtleff recommends that he use caramel made in Haiti. Address: 15262 Southwest 157th Terrace, Miami, Florida 33187. Phone: 305-233-6691.

2307. Strohl, Dick. 1995. Update on soybeans in Cuba (Interview). *SoyaScan Notes.* Dec. 19. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Dick will go to Cuba in 2 weeks and stay until January. Tom Miller, an attorney in Oakland, California, who is working to break the American blockade of Cuba, is helping Dick in his negotiations with the Cuban government. Frank Daller of ProSoya in Canada has spent quite a lot of time in Cuba. He has established a Canadian company (which Dick can work for legally as a consultant) and is looking for investors. Fidel Castro's chief of staff has written several letters showing his interest in soybean production in Cuba; he would welcome Canadian financial involvement. Dick is now working to secure a simpler contract than he previously envisioned. He would be happy to begin by renting 100 ha of land for his first crop of soybeans. He would like to start supplying information on many aspects of soybeans free of charge to Alvaro Garcio. Address: 2648 Inglewood Ave. South, Minneapolis, Minnesota 55416. Phone: 612-929-7649.

2308. Weaver, Eric. 1995. Update on EarthTrade and growing soybeans organically in Nicaragua (Interview). *SoyaScan Notes.* Dec. 19. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Nicaragua is the only country in Latin America where EarthTrade presently grows soybeans organically; the first crop was planted in June and harvested in December 1994. The variety grew and matured well, but there were many problems with the harvest. The crop was harvested wet with a combine that did not have a soybean implement, so many of the beans were cracked, crushed, or ground, creating a powder that then adhered to the surface of the whole soybeans. Thus, they were stained with soy powder, which led to a poor appearance. So EarthTrade ended up selling the entire crop for organic feed, even though they had several Japanese customers who were are interested in buying them for food use. The typical yields on nonorganic soybeans grown by other farmers in Nicaragua are about 3,800 to 4,000 pounds per manzana; EarthTrade's yields were 2,800 to 3,200 pounds per manzana on about 900 to 1,000 manzanas. Note: A manzana is larger than an acre; according to FAO figures, in Nicaragua, Guatemala, and Costa Rica, 1 manzana = 1.75 acres or about 0.7 hectares.

The second crop is being harvested right now. He will know the results by mid-January. In Central America, if you have 100 problems, you try to solve 50 of them the first year, 25 more the next year, etc. This year they hope to have solved the harvesting problems, and they are operating on a longer-term (2-3 years) perspective to work with their customers to choose specific varieties.

In the long term, Eric believes that organic soybeans will be one of EarthTrade's bigger crops. The company's leading crop now is organic sesame seeds, followed by organic flours (mostly wheat and corn, but also some barley and rye). Sales of all are growing rapidly. There is more profit in flours since they are processed, value-added products. About 60-70% of EarthTrade's crops are grown in Third World countries; some are also grown in the USA and Canada. Address: Secretary-Treasurer, EarthTrade, 1814 Franklin St., Suite 710-E, Oakland, California 94612. Phone: 510-987-7222.

2309. **Product Name:** Real Roasted Soys [Plain, Salted, BBQ, Salt and Garlic, and Chocolate Coated].
**Manufacturer's Name:** Dyshar Farms Ltd.

**Manufacturer's Address:** R.R. #3, Woodstock, ONT N4S 7V7, Canada. Phone: 519-537-2199.
**Date of Introduction:** 1995. December.
**How Stored:** Shelf stable.
**New Product–Documentation:** Ontario Soybean Growers' Marketing Board (OSGMB). 1997. *Canadian Soyfoods Directory.* Chatham, Ontario, Canada: OSGMB. 27 p. See p. 16. Founded and owned by Sharon Hart and Diane Marcou.

*Ontario Soybean Growers' Marketing Board Newsletter.* 1999. April. p. 7. "Profiles: Real Roasted Soys." Sharon Hart and Diane Marcou are the founders and owners of Dyshar Farms, which makes Real Roasted Soys. They have found that soy snacks make sense; people like them when they try them. Dyshar Farms' 4-point recipe for success has worked for them since 1996, and the company is in its fourth year of operation. Today, Dyshar Farms sells eight flavors: Plain, salted, BBQ, salt and garlic, sour cream and onion, honey coated, maple syrup coated, and chocolate coated.

Talk with Sharon Hart. 1999. April 20. Their roasted soys are oil roasted [deep-fried] with non-hydrogenated soybean oil. They have developed an innovative process of treating the soybeans before and after frying that makes their oil content about the same as it is before frying [about 16-20% of weight]. This is not a patented process and they are a cottage industry. Their products were first introduced shortly before Christmas of 1995 in the five flavors shown above.

2310. EarthTrade Inc. 1995. EarthTrade, Inc. announces 3rd quarter sales. Innovative business shows 147% increase in revenues (News release). 1814 Franklin St., Suite 710-E, Oakland, California 94612. 6 p. Dec.
• ***Summary:*** "EarthTrade has become a leader in the conversion to organic farming in Latin America by working in a close partnership with small farmers and farm cooperatives. Together they are showing that sustainable agriculture makes economic as well as environmental sense, marketing their goods throughout the U.S., Canada, and Europe."

"The company's cumulative revenues for the 9-month period through September 1995 were $2,232,246, compared to sales in the same period in 1994 of just over $903,000 and $1.36 million in total revenues for 1994." Michael Davis is the company's CEO and President. EarthTrade, which works with 2,500 small farmers and farm cooperatives in Central America, Mexico, Canada, and the United States, has offices in New York City, Oakland (California), and San Salvador. It is a member of OCIA (Organic Crop Improvement Association). Address: Oakland, California. Phone: 510-987-7222.

2311. *Ontario Soybean Growers' Marketing Board Newsletter.*1995. Profiles: W.G. Thompson & Sons Ltd., white hilum soybeans and Ontario's railroad system. Dec. p. 7.
• ***Summary:*** John O'Brien, Manager of W.G. Thompson & Sons Ltd., predicts that premiums for white hilum soybeans will virtually disappear within five years. Instead, more soybean growers will be locking in premiums by growing special varieties that companies such as Thompsons will contract and ship for specific Asian customers. "Thompsons, a $300 million a year family-owned business with 300 employees, has already earned a name is special quality crops. From its 14 Ontario elevators, the company works with farmers on 75,000 to 100,000 acres of contract crops each year, with over half that acreage going to soybeans."

White hilum soybeans have become just another commodity in Ontario, says Wes Thompson Jr. The future lies in going the next step, in sitting down with customers and finding out exactly what they want in a soybean, and then producing and shipping those soybeans for them as part of a long-term relationship. Thompsons is already contracting specific varieties for exclusive delivery to individual Pacific Rim makers of tofu, miso, and natto. At Pain Court, the company is also installing a high-tech sorting line that will enable it to sort for shape and color, and to completely eliminate foreign material. At the same time, Thompsons isn't getting out of the huge and profitable crush market. To prove that, it is playing a leading role in the campaign to save Ontario's rural rail network. Thompson's Hyland Seeds Division sold 14 private and 8 SeCan (public) varieties in 1995; it expects to sell 24 private and only 4 SeCan varieties in 1996. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2312. Beversdorf, W.D.; Buzzell, R.I.; Ablett, G.R.; Voldeng, H.D. 1995. Soybean. In: A.E. Slinkard and Douglas R. Knott, eds. Harvest of Gold: The History of Field Crop Breeding in Canada. Saskatoon, Saskatchewan: University Extension Press, Univ. of Saskatchewan. ix + 367 p. See p. 153-66. Chapt. 13. [14 ref]
• ***Summary:*** An outstanding history of soybean breeding and production in Canada. Contents: Introduction. Evolution of the soybean crop in Canada. Early breeding efforts. The emergence of soybean as a significant Canadian crop (1940-70). The modern soybean breeding era [1970 on]. Current breeding objectives and methods.

Before 1930, soybeans were "grown primarily for annual forage production when traditional forage crops failed to survive Ontario winters." The appearance of two short-lived soybean crushing facilities in southwestern Ontario [at Milton in about 1930 and Chatham by April 1933] aided the transition of soybeans from a fodder crop to a grain legume crop.

"Evolution of Canada's soybean crop since 1949 reflects the expertise of soybean producers, dramatic

improvement in production technology, improved and earlier maturing cultivars, improved domestic processing capacity and significant export market development."

"Soybean in Canada was born in the vision of C.A. Zavitz, arguably a man 50 years ahead of his time. Zavitz, who was head of the Field Crop Department of the Ontario Agricultural College (OAC) meticulously evaluated and selected soybean introductions for both fodder and grain production for 30 years (Zavitz 1927)."

"In 1893, Zavitz planted the first Canadian soybean crop, probably as a replacement for a field pea that failed to establish that year." Over the years, "Zavitz and two of his colleagues W.J. Squirrel and A.E. Whiteside, evaluated about 100 soybean introductions from the Orient [East Asia] via the United States and Japan for forage and grain production (Zavitz 1927)."

Early soybean breeding in Canada (before 1920) primarily involved the meticulous separation and selection of pure lines from heterogeneous seed introductions. "For example, Zavitz selected and evaluated 34 lines from nearly 10,000 plants from the Habaro cultivar obtained from the" USDA in 1909 (Zavitz 1927).

In 1923 A.E. Matthews and F.W. Dimmock of the Central Experimental Farm (CEF [part of the Dominion Experimental Farms]) conducted a soybean trial at the Harrow Research Station (HRS). "Dimmock continued soybean testing at Harrow until 1929, when Casper Owen took over (Ward 1978)."

The pioneering work of Zavitz (OAC), Dimmock (CEF) and Owen (HRS) to identify and develop soybean varieties adapted to southern Canada created "a base of soybean germplasm and technical knowledge that would support evolution of the soybean crop during and after" World War II.

During and after the war, the main soybean breeders in Canada were C.W. Owen at HRS and F. Dimmock at CEF. Varieties released after 1940 were mainly the result of pollinations among earlier selections from plant introduction and of pedigree selection procedures (Bernard et al. 1988).

The rapid growth in Canadian soybean production in mid-1940s can be attributed to: A large growth in the demand for oil and protein during the war, the appearance of Victory Mills Ltd. in Toronto, improved varieties, promotion and extension efforts by Ivan M. Roberts (of the Field Husbandry Dept. of OAC in 1948 but agronomist for Victory Mills by 1953), and improved inoculant produced by the Microbiology Dept. of OAC. From the 1940s until the late 1970s nearly all of Canada's soybeans were produced in five southwestern Ontario counties: Elgin, Essex (incl. Pelee Island in the middle of Lake Erie; a southernmost point in Canada), Kent, Lambton, and Middlesex (see map near front of book).

Key soybean varieties of the period 1940-1970 are shown in Table 3. One key variety was Harosoy, released by HRS in 1951. Other key soybean breeders were Baldur Stefansson (from 1952) at the University of Manitoba that lead to Portage and Altona. G.E. Jones (from 1953) at OAC that led to Vansoy. John Giesbrecht (from 1959) at Morden (southern Manitoba) that led to Morsoy. A.A. Hildebrand was a pathologist who pioneered early research on phytophthora root rot; he worked with Owen to establish a program of disease resistance breeding at Harrow.

The 1960s: In 1961 Dimmock retired from CEF and was replaced by Lorne Donovan as an adjunct to his corn breeding program. In 1963 Owen retired from HRS and was replaced by R.I. Buzzell. Very early maturing introductions cane from Sven Holmberg of Sweden. "Holmberg's material proved to be significant germplasm for Canadian soybeans. He derived it from crosses involving Manchurian and northern Japanese germplasm selected under the cool short-season environments (58º30'N) of Fiskeby, Sweden (Tanner 1973)."

Harosoy 63 dominated Canadian soybean production by the late 1960s. During this decade "two Ontario counties (Essex and Kent) produced nearly two-thirds of the Canadian soybean crop.

In 1974 H. Voldeng took over the soybean breeding program at CEF. In 1976 W. Beversdorf joined the University of Guelph with split responsibilities in soybean and field bean breeding and genetics. In 1982 G. Ablett initiated a soybean breeding program at the Ridgetown College of Agricultural Technology (RCAT). In 1976 CEF released Maple Arrow, a milestone cultivar, with parentage that included a Holmberg line. Maple Arrow, which was well adapted to the short-season areas of Ontario, combined with the higher prices of the early 1970s, sparked a soybean expansion northward and eastward.

The last two sections of this chapter are the longest and most detailed.

Figures show: (1) Graph of soybean production in Canada, 1945-1991. (2) Average yield of soybeans in Canada, 1938-1992.

Tables: (1) Early soybean selections and evaluation (OAC No. 211, Mandarin, Habaro No. 20405, Early Yellow). For each is given: Average height (inches), green fodder production (tons / acre). Yield of grain (lbs / acre). Source: Zavitz 1927.

(2) Early Canadian soybean cultivars (OAC 211 {released 1923}, A.K. (Harrow) {1933}, Mandarin (Ottawa) {1934}, Kabott {1937}, Pagoda {1939}, Goldsoy {1938}). For each is given: Source (pedigree, e.g., Habaro). Institution (e.g., OAC). Year licensed or released (1923-1939). (3) Canadian soybean cultivars of 1940-1970 (Harman {released 1943}, Capital {1944}, Manchu (Montreal) {1944}, Harly {1951}, Harosoy {1951}, Acme {1953}, Comet {1953}, Hardome {1953}, Crest {1957},

Merit {1959}, Portage {1964}, Altona {1966}, Harwood {1970}, Vansoy {1970}). For each is given: Pedigree, institution, year.

(3A) Public and private breeding of soybeans, Canada and USA, 1973-1992. The impact of privately funded soybean breeding programs has increased steadily since 1973, when the first privately bred variety was registered in Canada. This "private" variety was bred by N.R. Bradner in the USA and introduced to Canada by St. Clair Grain and Feed (a division of Maple Leaf Mills Ltd.). In 1973 in Canada there were 170 acres of privately bred soybean seed compared with 14,181 acres developed by publicly funded breeders. In 1982 the figures were 6,066 and 27,354 respectively. In 1987 the figures were 28,148 and 29,960 respectively. And in 1992 the figures were 43,004 acres private and 26,727 acres public. In this 20-year period, 120 private soybean varieties and 51 public varieties were registered. 27% of the private varieties and 81% of the public varieties came from U.S. breeding programs.

(4) Typical breeding cycle in the University of Guelph breeding program. Columns: Year and season, activity, location. The typical cycle is about 8 years. (5) Canadian soybean breeding programs (1991): Columns: Organization (public sector and private sector). Breeder (6 + 5 = 11 breeders in both sectors). Address: 1. Ciba Seeds, Greensboro, North Carolina; 2. Agriculture and Agri-Food Canada Research Station, Harrow, Ontario; 3. Ridgetown College of Agricultural Technology, Ridgetown, Ontario; 4. Agriculture and Agri-Food Canada Research Station, Ottawa, Ontario.

2313. Grogan, Bryanna Clark. 1995. The (almost) no-fat holiday cookbook: Festive vegetarian recipes. Summertown, Tennessee: The Book Publishing Co. 192 p. Index. 21 cm. [26 ref]
• ***Summary:*** This low-fat vegan cookbook, containing a wealth of soy-related recipes, features 18 menus for celebrating holidays from around the world. Address: Denman Island, east of Vancouver, British Columbia, Canada.

2314. Slinkard, A.E.; Knott, Douglas R. 1995. Harvest of gold: The history of field crop breeding in Canada. Saskatoon, Saskatchewan: University Extension Press, Univ. of Saskatchewan. ix + 367 p. Illust. 23 cm. *
• ***Summary:*** Chapter 13 is titled "Soybean," by W.D Beversdorf, R.I. Buzzell, G.R. Ablett, and H.D. Voldeng (p. 153-66). It is an outstanding history of soybean breeding in Canada.

2315. Stirz, A.V.; Carter, M.R. 1995. Conservation tillage systems, fungal complexes and disease development in soybean and barley rhizospheres in Prince Edward Island. *Soil and Tillage Research* 34(4):225-238. [34 ref]* Address: Prince Edward Island Dep. of Agriculture, Fisheries and forestry, P.O. Box 1600, Charlottetown, P.E.I., C1A 7N3, Canada.

2316. **Product Name:** Tofu, Soymilk.
**Manufacturer's Name:** Din Ho Foods, Inc.
**Manufacturer's Address:** 5475 Rotterman St., Montreal, QUE H4P 1J3, Canada. Phone: 514-735-9503 or 9502.
**Date of Introduction:** 1995?
**New Product–Documentation:** Name and address sent by Marc Ham of Prograin in Quebec. 1996. Feb. 1. This company makes tofu and soymilk.

2317. **Product Name:** Tofu, Soymilk.
**Manufacturer's Name:** Les Aliments Fontaine Santé.
**Manufacturer's Address:** St.-Laurent St. 4560, QUE H4M 2N5, Canada. Phone: 514-956-7730.
**Date of Introduction:** 1995?
**New Product–Documentation:** Name and address sent by Marc Ham of Prograin in Quebec. 1996. Feb. 1. This company makes spreads using tofu, hummous, tahini, etc. The owner is Mr. Di Savioz.

2318. **Product Name:** [Soy Sprouts, Tofu, Soymilk].
**Foreign Name:** Germes de haricot (Chop suey), Tofu, Boisson de Soja.
**Manufacturer's Name:** Les Aliments Panda Foods Inc.
**Manufacturer's Address:** 4800 St.- Ambroise, Suite 110-111, Montreal QUE H4C 3N8, Canada. Phone: 514-846-0824.
**Date of Introduction:** 1995?
**New Product–Documentation:** Name and address sent by Marc Ham of Prograin in Quebec. 1996. Feb. 1. The name of the owner / director is Vinh Sieu Tran.

2319. **Product Name:** [Tofu, Soymilk].
**Manufacturer's Name:** Super Marché Sun Hing.
**Manufacturer's Address:** 1050 Boul. St. Laurent, Montreal QUE H2Z 1J5, Canada. Phone: 514-866-8110.
**Date of Introduction:** 1995?
**New Product–Documentation:** Name and address sent by Marc Ham of Prograin in Quebec. 1996. Feb. 1.

2320. Garcia Uriarte, Alvaro; Ortega, Alberto. 1996. Recent history of soyfoods in Cuba. Part IV (Interview). *SoyaScan Notes.* Jan. 9. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Again and again during 1994 the Food Industry Research Institute (FIRI) team went to dairy processing plants in Cuba. It was a marathon effort. By the end of 1994 a remarkable 14 new soy dairies making soy yogurt had been installed in the wings of existing dairy plants throughout Cuba. This mammoth effort was possible through the cooperation of the Ministry of Food Industry

(MINAL) and local enterprises and governments. The NT equipment was built mostly by the Enterprise in Charge of Equipment Building and Installation. Most of the plants had a capacity of either 2,000 or 4,000 liters/hour; the smallest was 1,200 liters/hour. During 1994 the 14 plants churned out a total of 11 million liters of soy yogurt–4 million liters from the one plant in Havana using the two large Alfa-Laval centrifuges, and 7 million liters from the 13 other plants using the new technology. By late 1994 about 400,000 kids ages 7-13 living in the provincial capitals nationwide were receiving 1 liter of soy yogurt a week. Alvaro and his coworkers at FIRI were so convinced of the superiority of their technology that in Nov. 1994 they eliminated the Alfa-Laval plant, replacing it the next month with two new NT production lines.

During 1995 eight more plants were installed, bringing the total to 22. These plants produced 33 million liters of soy yogurt (containing 3.0 to 3.2% protein), which reached about 500,000 kids. Though there are presently about 1,200,000 kids in Cuba, most of those not living in the capitals have access to milk from the nearby cows. Alvaro showed us a chart listing the location of each plant, the date it began operation, and its capacity. As of mid-January 1996 four new plants are under construction, and 5 more are on the drawing boards, ready to go. One of the plants under construction in Havana will make only spreadable soy cream cheese *(queso crema),* a new product developed at FIRI.

Three basic types of yogurt were made in Cuba's many soy dairies: 50% of the total was set soy yogurt sold in bulk containers, which reduced packaging costs. Local people would bring their own containers in which to take home their portion of the yogurt. Another 25% was set soy yogurt in one liter glass jars–which were, of course, recycled after use. The last 25% was stirred soy yogurt, sold in one liter plastic bags as a drink having the consistency of a milk shake.

The plan for 1996 is to produce 76 million liters of soy yogurt–more than double the total for 1995!

In September 1994, soymilk started to be used (together with dairy milk) in Cuban ice cream, made at the dairy plant at Pinar del Rio. In 1995 some 12 million liters of soymilk were used in Cuba's ice cream, accounting for 50% of the total milk used–the other half being cow's milk. However no soymilk is used in the most famous Cuban brand of ice cream, Copelia. This is made with only fresh milk and cream, using a traditional dairy formula and technology.

In January 1995 a cultured/fermented spreadable soy cream cheese was first made commercially in Cuba at the dairy plant in the province of Villa Clara. Resembling Cuba's traditional *queso crema* but containing no animal products, it is used as a spread on bread or crackers, in salad dressings, served as a dessert topped with marmalade or jam, or mixed with canned meat to make a pâté.

Soybeans were first cultivated in Cuba in 1904, and the climate and soil have always been good for growing them. Yet although Cuban scientists have done extensive research on soybean production over the last few decades and developed new soybean varieties that yield well under Cuban conditions, almost no soybeans are grown in Cuba today, in part because of the historical emphasis on sugar. Therefore Cuba has to import all of the 10,000 tonnes per year of soybeans used to make soymilk and soy yogurt, using precious foreign exchange. In the past, Cuba has also imported roughly 300,000 tonnes of soybeans (as whole beans or soybean meal) for animal feed. The food-grade soybeans come mostly from Canada and Brazil. Canada's white-hilum soybeans are considered the best for soy yogurt. For 45 days during 1995 no soybeans were imported into Cuba due to the lack of hard currency (U.S. dollars). The Soy Cubano! program of Global Exchange in San Francisco is working to help Cuba become more self-sufficient in soybeans. For Cuba to become self-sufficient at 1989 levels of consumption for the 11 million inhabitants, the country would have to grow about 500,000 tonnes of soybeans.

The development of new soyfoods products does not stop here. The FIRI team has two big projects on tap for 1996. The first is to expand commercial production of spreadable soy cream cheese, which will be made at existing dairy plants in 10 provinces throughout Cuba *(Santiago de Cuba, Holguín, Bayamo, Las Tunas, Camagüey, Ciego de Avila, Sancti Spiritus, Villa Clara, Matanzas, and Pinar del Rio)* and to finish the spreadable soy cream cheese factory in Havana with 10 tonnes/day capacity. At each plant they hope to make 500 to 1,000 kg/day, and a total of 5,000 tonnes in 1996; this will require an additional 10 million liters of soymilk. The second project is to make two types of powdered soymilk. Type 1, which is spray dried, contains 85% soymilk and 15% dairy milk, plus cocoa, sugar, salt, and vitamin A. Type 2, which is roller dried, resembles a traditional Nestlé product called *Harina Lacteada.* The ingredients are similar to type 1 except that rice is substituted for cocoa. Cuban researchers are very interested in learning more about Japanese *amazaké* (a traditional non-alcoholic fermented rice beverage made from koji), about the various new enzyme-hydrolyzed rice beverages made in America, and about ways to mix soymilk with ricemilk. Cuba plans to make a total of 2,000 tonnes of powdered soymilk in 1996. They are also working on development of spreadable soybean pâtés with different flavors, among them ham, and *chorizo* (a paprika spiced Spanish-style pork sausage).

To summarize: In 1995 Cuba used 7,000 tonnes of soybeans to make 47 million liters of soymilk; 1 kg of soybeans yields about 7 kg of soymilk. Of this soymilk, 33 million liters were used for soy yogurt, 12 million liters for soy ice cream, and 2 million liters for spreadable soy cream

cheese. In 1996 Cuba plans to use 76 million liters for soy yogurt, 14 million liters for soy ice cream, and 10 million liters for spreadable soy cream cheese. Total: 100 million liters, or roughly twice as much. Continued. Address: 1. Ing., Director; 2. Vicedirector. Both: Food Research Inst. *(Instituto de Investigaciones para la Industria Alimenticia)*, Carretera Guatao Km 3½, La Lis 19200, Havana City, Cuba. Phone: 21-6986 or 21-6742.

2321. Chan, Chi-Keung; Lee, Stella; Le, Naomi. 1996. Vitasoy recalls 30 million drink cartons. *South China Morning Post (Hong Kong).* Jan. 10. p. 1 (Wednesday, ed. 2).
• ***Summary:*** "Soft drinks maker Vitasoy yesterday announced it is to recall an estimated 30 million drink cartons from Hong Kong and the rest of the world because of continuing production problems. The company, acting on more complaints about sour-tasting soya milk, is to also suspend production at its Tuen Mun plant. Managing director Winston Lo Yau-lai, who last week announced suspension of the company's Shenzhen carton production lines, last night would not rule out industrial sabotage.

"Retailers are being asked to stop sales of all cartons of Vitasoy drinks including soya milk, lemon tea and juices in 250-millilitre, 375 ml and one-litre packs. Customers and retailers would be offered refunds... The company estimated that recalling the 15 million packs in circulation in Hong Kong and Macau would take 12 days. But it could not say how long it would take to recall a further 15 million packs from more than 10 countries, including Canada, Australia, and the United States.

"Yesterday's announcement followed three more complaints from consumers concerning sour soya milk produced at the firm's Tuen Mun plant... The group decided to recall eight million drinks manufactured in Shenzhen last Thursday after a barrage of complaints. A day later, it also recalled 42,000 cartons produced in Tuen Mun... The company promised none of the 1,000 workers at the plant would be affected. The recall does not affect the company's bottled products including soya milk, iced teas, distilled water and Vita fresh milk. But paper products represent 'a significant proportion' of turnover.

"The firm admitted that the latest recall would have a 'material adverse effect' on profits. Vitasoy International shares will also be suspended from stock market trading from this morning. The news came just as its share price was recovering from the sharp fall caused by last week's announcement of the problems with Hong Kong and Shenzhen production. After falling more than eight per cent since Friday, the price yesterday rose five per cent to $3.125.

"Mr. Lo rejected claims the announcement had been provoked by Health Department pressure." Preliminary results of Health Department tests showed that of the 240 samples tested, only "four had been found to have abnormal acidity."

"'While bacteria were found in these four samples, they were not of pathogenic (disease-causing) nature,' a spokesman said. 'Further tests will be conducted to confirm the exact identity of the bacteria.'"

2322. Daller, Frank. 1996. Interest in and activities related to soyfoods in Cuba (Interview). *SoyaScan Notes.* Jan. 19. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Frank has traveled to Cuba 3 times (paying his own way) to do soy-related work. He was there first in Aug. 1995 and is very impressed with the resourcefulness and sincerity of the Cuban people. He likes the people he has met very much and is trying to help–not trying to sell them equipment or steal their soymilk processing secrets. He plans to buy a SoyaCow with his own funds and donate it to some place in Cuba–probably Dr. Gilberto Fleites at a cancer hospital. He wonders why the Cubans have focused on making soy yogurt rather than soymilk. If they use a hot-blanch process, perhaps because they have a high proportion of suspended solids (rather than dissolved solids), which might settle out in soymilk. In a 4-star hotel in Cuba where he was staying, he was served a sweetened yogurt for breakfast in a cafeteria line. The attendant told him it was soy yogurt, but he is not certain that it was since he could not tell the difference. Through his contact with the Canadian ambassador in Cuba, Frank was able to meet with Jesú Montane (pronounced HAY-su MON-tan-ay), who is a personal secretary of Fidel Castro and who is deeply interested in work with soyfoods in Cuba. Address: ProSoya Inc., 5350 Canotek Road, #7, Gloucester, ONT K1J 9C9, Canada. Phone: 613-745-9115.

2323. Lowe, Sherry; McCarvel, Bonnie. 1996. The difference between state soybean associations and state checkoff boards (also called research and promotion councils) (Interview). *SoyaScan Notes.* Jan. 22. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Sherry: The Minnesota Soybean Growers Association is a membership organization supported by membership dues. It is the legislative arm of the soybean industry. The members lobby legislators, and work for representation at the state and national levels. USB might refer to the Minnesota association as "our Minnesota state office."

The Minnesota Soybean Research and Promotion Council gets its funding from the soybean checkoff program. The Council, which is made up of 14 farmers who are elected, cannot lobby. At the beginning of each fiscal year they go over a list of projects and decide where they want to invest and administer the checkoff funds in programs that are designed to promote, educate, inform, improve marketing of soybeans, do research, etc. The

checkoff dollars come from each state; the state gets half of these dollars and the United Soybean Board (USB) also gets half. The USB has a master plan which shows where and how they will invest their soybean checkoff dollars in the areas of domestic marketing, international marketing, research, consumer education, and producer communications.

In Minnesota and in a majority of the 26 states that have a qualified state soybean board, the Growers Association and the Board are located in the same building to save money. Mailings sometimes go out from "Minnesota Soybean." By law, the administrative costs of the Councils most be kept at 5% of total income. Therefore the growers associations act as contractors for the Council, to carry out their projects, and pay overhead on the building.

Bonnie: Every farmer in the USA who grows soybeans, even in California for example, must contribute to the checkoff, even though there is no state organization. About 26 states have associations. Canada also keeps in touch thorough a state board (OSGMB in Ontario). The Qualified State Soybean Boards (QSSBs) are commonly called "checkoff boards." These checkoff boards are spending more money promoting soyfoods, not because the national checkoff law requires this, but because the states had more funds to work with and suddenly a lot of interesting new research information was available about the health benefits of soybeans. These new funds could be used rather easily to develop a domestic program and build a new image for soybeans. The previous image was that soybeans are used for livestock feed. "We wanted to go beyond that and show some of the health benefits for people, using the new research information." The state boards have continued to work with the livestock industry and they have promoted food uses of soybeans in a careful way that has led to no problems from the livestock industry."

The state can spend its 50% of the checkoff funds in any way it wants on research and promotion related to soybeans or soyfoods, domestically or internationally, as long as it does not lobby or do membership activities–those latter two functions are left to the state growers associations. A state could put all of its money, for example, into international market development or into research on industrial uses of soybeans, or increasing soybean yields. Most states spend more money on domestic programs than on international ones, but most also some things internationally–often jointly with other state boards. Missouri is investing funds in China (aquaculture and livestock production), Hungary, and Japan. "The USB has approved various projects, say ten, which are prioritized. Then they said to the states, "If any state wants to fund any of these, let us know by a certain date.' Missouri said, 'We'll help pay for no. 1, 3 and 5.' Other boards might join with Missouri on large projects. If states picked up 6 of the ten projects, USB might then have enough money to fund the remaining unfunded projects. One of USB's projects was nationwide nutrition seminars led by Mark Messina, PhD. The Minnesota board funded four of these nutrition seminars in Minnesota and several other states. Bonnie attended the seminar in Minnesota and was very pleased with the results. Most states get involved in some projects suggested by USB.

There is also considerable regional cooperation, planning, and sharing of information. For example, after a regional meeting of state soybean boards, Missouri might take the lead in developing and funding a video on soya for clinical dietitians, then make that video available to other state boards for a small fee. Address: Communications Specialist, Minnesota Soybean Growers Assoc.; 2. Executive Director, Minnesota Soybean Research & Promotion Council. Both: 360 Pierce Ave., Suite 110, North Mankato, MN 56003. Phone: (507) 388-1635.

2324. Erlich, Reese. 1996. Cuba's upturn: Sweet but partial. *Christian Science Monitor.* Jan. 24.
• ***Summary:*** After six years of crisis, the Cuban economy has bottomed out (1993) and started to recover in 1995. Yet the country still faces major shortages of food and basic consumer goods. Electrical blackouts occur several times a week in Havana. Cuba's gross domestic product (GDP) dropped 34.3% from 1989 to 1993. Sugar remains the country's largest source of foreign exchange.

"In 1989, with the Soviet empire's collapse, Cuba lost a major source of subsidies and the source of 85% of its foreign trade. The ongoing U.S. economic embargo forces the island to purchase goods at higher prices from other nations..."

A sidebar, titled "Let them eat soy–If they want to," is about Frank Daller, president of Daller & Co. of Ottawa, Canada. His mission is to promote the production of soybeans, and an appetite for soy products as an inexpensive source of protein. He recently signed a letter of intent with Cuba's Ministry of Agriculture to grow soybeans, sell harvesting and processing equipment, and eventually develop soy products for the Cuban market. He hopes to introduce soy-based ice cream, drinks, and cooking oil.

Since the 1989 collapse of the Communist east bloc and the advent of the "special period," Cuba has been emphasizing soy. But soybean imports are costing Cuba about $50 million a year in scarce foreign exchange. "Cubans identify soy products with the hardships of the special period. 'Most people think the meat [extended] with soy tastes awful,' says housewife Hilda Cercero. 'Once times get better, I don't think people will eat it,' she says."

2325. **Product Name:** Jersey Farm Soya Yogurt (100% Non-Dairy) [Honey-Vanilla].
**Manufacturer's Name:** Alamar Farms, Ltd.

**Manufacturer's Address:** Delta, BC, Canada. Phone: (604) 946-5311.
**Date of Introduction:** 1996. January.
**Ingredients:** Filtered water, certified organically grown soy beans, honey, concentrated soy protein, vanilla extract, live bacterial cultures.
**Wt/Vol., Packaging, Price:** 450 gm.
**How Stored:** Refrigerated.
**Nutrition:** Per 175 ml.: Energy 166 calories, 697 kj, protein 10 gm, fat 2.8 gm, carbohydrate 26 gm, cholesterol 0 mg, sodium 11 mg, potassium 430 mg.
**New Product–Documentation:** Talk with Dusty Cunningham of Pacific ProSoya Foods, Inc. 1996. Feb. 5. This product is made using her company's soymilk. It was launched in Jan. 1996.

Ann Behling. 1996. *Soybean Digest.* Mid-Feb. p. 56. "New technology makes soy foods tastier: Canadian firm makes concentrate for ice cream, milk, and yogurt." About Pacific ProSoya Foods and Jersey Farm Soya Yogurt.

Color photocopy of Labels sent by Dusty Cunningham. 1996. March 12. The circular label on the lid is 3¼ inches in diameter. Red, yellow, blue, and green on purple. Illustrations show a cow's head and a flower. The label around the carton, 11 by 4 inches, is the same colors. It contains French and Chinese text as well as English. "No lactose. No cholesterol. 100% natural. No preservatives. Low in saturated fat. Excellent source of protein. Great for infants and children. Contains live Acidophilus and Bifidus cultures."

2326. *Canadian Architect.*1996. Post-industrial aggregate: The elephantine concrete silos of Victory Soya Mills are being demolished after 50 years of faithful industrial service. 41(1):38. Jan. *
Address: Canada.

2327. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada).*1996. Serial/periodical. Chatham, Ontario, Canada: Ontario Soybean Growers' Marketing Board. Vol. 1, No. 1. Jan. 1996.
• ***Summary:*** Starting in Jan. 1996 (Vol. 1, No. 1) this *Technical Bulletin* (printed in red and black ink on beige paper; 1 page, front and back) was inserted in many issues of *Canadian Soybean Exports.* It had the subtitle: "The Export Newsletter Technical Bulletin by the Ontario Soybean Growers' Marketing Board." It contained technical articles with titles such as: "Evaluation of soybeans for tofu processing." Address: Chatham, Ontario, Canada.

2328. Doidge, Brian. 1996. Canadian soybean export prospects for 1996. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada)* 9(1):3-4. Jan.
• ***Summary:*** "The recent formation of the Canadian Soybean Export Association (CSEA), serves to focus attention on this rapidly growing sector of the Canadian soybean industry." The 1994/95 crop set a new record with soybean exports of 524,254 tonnes (19.26 million bushels). Another strong year is projected for 1995/06.

Note: The CSEA is an association of major Canadian soybean exporters; the association does not itself export. One of its major objectives is to lobby the Canadian government for funding and promotional support.

Talk with Michael Loh of Canada. 1996. Jan. 24. Members of CSEA include W.G. Thompson, Maple Leaf Foods, Cargill, etc. Nutrisoya, Inc. will also be a member.

A half-page table (p. 3) shows Ontario soybean supply and demand for 4 years from 1992/93 to 1995/96. Under soybean supply, statistics show: Acres harvested, beginning stocks, production, imports, and total supply. Under soybean supply are: Crush, export, seed, other domestic use, and total use. Plus ending stocks and average price per bushel.

A full-page table (p. 4) lists Ontario soybean exports for 4 years from 1991/92 to 1994/95. Ontario's top four export customers in Asia in 1994/95 were: Japan (25,988 tonnes), Hong Kong (23,311), Singapore (22,502), and Malaysia (16,231). Others are Indonesia, North Korea, Philippines, and Taiwan. The top 4 customers in Western Europe in 1994/95 were: Netherlands 73,654 tonnes, Spain 61,134, France 51,119, Belgium 15,428. In Eastern Europe, Poland bough 10,000+ tonnes in 1993/94 and 1994/95 and Uzbekistan bought 7,117 tonnes in 1993/94. Total exports have grown steadily from 238,809 tonnes in 1991/92 to 495,772 tonnes in 1994/95. Address: Education and Business Manager, Ridgetown College of Agricultural Technology.

2329. *Health Naturally (Ontario).*1996. The tempeh of the times. Dec. 1995 / Jan. 1996. p. 44.
• ***Summary:*** "Terrific tempeh is made right here in Canada by Noble Bean, a small family-run business in the Ottawa Valley. Noble Bean uses only organically grown soybeans in its plain tempeh, combined with other organic grains (such as quinoa, rice, barley and millet) in its blended tempeh."

"Look in the freezer section for Noble Bean tempeh, available in health food stores in central and eastern Canada (Noble Bean, phone/fax 613/278-2305).

A photo shows the packages and labels of six different Noble Bean tempeh products.

2330. Lai, Benny. 1996. Dah Chong Hong–A pioneer in using Ontario soybeans. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada)* 9(1):2. Jan.
• ***Summary:*** In the mid-1970s Mr. Lai was working in the Food and Edible Oil Dept. of Dah Chong Hong's head office in Hong Kong. He and co-workers imported 800 bags of Ontario special quality white hilum soybeans into Hong Kong for testing. They distributed the soybeans to more

than 30 manufacturers of soybean curds, tofu, soy milk, soy sauce, and other soy products. "The quality was considered not very terrific by most end-users, in terms of 'yield' when manufacturing the soy products, but was acceptable." To further explore development of this imported product, Mr. Lai and Mr. Chi-bun Leung flew to Canada, where they were warmly welcomed and treated Dah Chong Hong's as pioneers. "Since that time Dah Chong Hong has imported Ontario soybeans for the Hong Kong market continuously every month now for more than 20 years. The overall quality of Ontario soybeans has improved over the years, and the quantity has been growing from only one or two containers per month in the mid-1970s, to hundreds of containers per month presently."

In 1984 Dah Chong Hong (Canada) Ltd., a wholly owned subsidiary of the head office in Hong Kong, was established in Vancouver, British Columbia, Canada. "One of our goals is to export more Canadian soybeans to many countries in Asia." The address in BC is: 4211 No. 3 Road, Richmond, BC V6X 2C3. Phone: 604-273-8222. Fax: 604-273-9222. Address: President, Dah Chong Hong (Canada) Ltd., 4211 No. 3 Road, Richmond, BC V6X 2C3, Canada. Phone: 604-273-8222.

2331. Lowe, Jim. 1996. 1995 Canadian soybean quality. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada)* 9(1):1-2. Jan.
• ***Summary:*** A table gives quality data for soybean shipments from Canada during the two crop years 1995/96 and 1994/95 for Canadian grades no. 1 and 2. The oil content and protein content (mean, minimum, and maximum–on a moisture-free basis) are shown. The mean figures are as follows for 1995/95: Canadian no. 1: Oil 20.0%, protein 43.4%. Canadian no. 2: Oil 20.5%, protein 42.7%.

A one-paragraph analysis of the following basic quality factors is also given: Test weight, moisture content, colour, size uniformity, damage and splits, foreign material. Address: Regional Manager, Canadian Grain Commission, Chatham, Ontario, Canada.

2332. Lukin, Anne. 1996. Tempeh temptations: Festive vegetarian dishes for the holidays. *Ontario's Common Ground Magazine (Canada)* Winter 1995/96. p. 16, 18-19.
• ***Summary:*** An introduction to tempeh, with five recipes. Tempeh makers in Ontario include Noble Bean and Soy City (Lorraine Guardino). A photo shows six tempeh products (packages and labels) made by Noble Bean.

2333. Luzzi, Bruce. 1996. Soybean germplasm with modified fatty acid profiles. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 1(1):1-2. Jan.
• ***Summary:*** The quality and use of soybean oil is dependent on the relative proportions of the five basic fatty acids in the oil: saturated (palmitic and stearic), monounsaturated (oleic), and polyunsaturated (linoleic and linolenic). Soybean oil high in polyunsaturated fatty acids, especially linolenic acid, is undesirable to processors these fatty acids reduce oil stability and increase the rate of oxidative rancidity. Hydrogenation has traditionally been used to reduce the level of polyunsaturated fats and increase oil stability. Palmitic acid has been associated with increasing blood cholesterol levels and the risk of coronary heart disease. Replacing palmitic acid with stearic acid in the fatty acid profile of soybean oil may provide the structure necessary for the production of solid fats without adversely affecting human health.

In 1984 the University of Guelph and the Ridgetown College of Agricultural Technology initiated a program to develop soybean genotypes with altered fatty acid profiles. "Treating soybean seeds with a chemical mutagen (EMS) produced genotypes with reduced levels of palmitic or linolenic acids and elevated levels of stearic or oleic acids. Some of these lines were remutated or hybridized to create genotypes with desirable levels of two or more fatty acids."

Table 2 shows the fatty acid profiles in various soybean genotypes, 5 derived from chemical mutation, 3 derived from hybridization, together with the typical fatty acid profile of a soybean. Address: Univ. of Guelph, Guelph, Ontario, Canada.

2334. Ma, C.Y.; Buzzell, R.I.; Jessop, D.B.; Buttery, B.R. 1996. Evaluation of soybeans for tofu processing. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 1(1):1-2. Jan.
• ***Summary:*** Contents: Introduction. Tofu yields and texture. Flow properties of soymilk. 11S / 7S globulin ratio. Correlation among soymilk and tofu variables. Conclusions.

In this study, eight Ontario, five USA, and two Japanese soybean cultivars covering a wide range of protein content were evaluated for their tofu processing properties, using glucono delta lactone as a coagulant. Table 1, titled "Characteristics of soymilk and tofu prepared from 15 soybean varieties," lists the following varieties (in descending order of soymilk protein; a water to dry matter ratio of 7 was used in making soymilk and tofu): BARC-6, AC Proteus, Proto, Harovinton, Raiden, Enrei, HP202, Secord, TK-89, Kanrich, RCAT Calico, Maple Arrow, RCAT Angora, Grande. This table contains the following vertical columns: Soybean protein (highest was BARC-6 at 53.4% on moisture-free basis), soymilk protein (highest was 6.1% from AC Proteus), soymilk yield (highest was 5.7 kg/kg from Maple Arrow), tofu yield (highest was 4.6 kg/kg from Harovinton and Raiden), tofu firmness (highest was 0.42 N/mm from Enrei), tofu rigidity (highest was 1680 G', Pa from Maple Arrow), soymilk viscosity (highest was 7.73

from BARC-6), and soymilk 11S/7S (highest was 5.44 from Secord; It has been reported that soybeans with a high 11S/7S ratio will produce firmer tofu).

Conclusion: "Results show that Canadian tofu varieties such as Harovinton have excellent tofu processing properties (yields, textures, etc.) comparable to or exceeding those of Enrei, a Japanese tofu variety." Address: 1. Centre for Food & Animal Research, Agriculture & Agri-Food Canada, Ottawa, Ontario, Canada; 2-4. Harrow Research Centre, Agriculture & Agri-Food Canada, Harrow, Ontario.

2335. **Product Name:** Nutrisoy Premium Lite (Aseptic Soymilk).
**Manufacturer's Name:** Nutrisoya, Inc.
**Manufacturer's Address:** 4050 Pinard, St.-Hyacinthe, QUE, J2S 8K4, Canada. Phone: 514-796-4261.
**Date of Introduction:** 1996. January.
**Wt/Vol., Packaging, Price:** Tetra Brik Aseptic carton.
**How Stored:** Shelf stable; refrigerate after opening.
**New Product–Documentation:** Classified ad in Bluebook Update. 1996. July/Sept. p. 7. In. January 1996 the company launched its new line of aseptic packaged soymilk, "Nutrisoy Premium Lite."

2336. **Product Name:** Silk (Soymilk Sold Refrigerated in Quart or Half Gallon Pure-Pak / Gable Top Cartons) [Vanilla].
**Manufacturer's Name:** White Wave, Inc. (Product Developer-Distributor). Made in Vancouver, Canada (by Pacific ProSoya Foods) and formulated in Gustine, California (by Tan Industries).
**Manufacturer's Address:** 6123 E. Arapahoe Rd., Boulder, CO 80303. Phone: 303-443-3470.
**Date of Introduction:** 1996. January.
**Ingredients:** Water, whole organic soybeans*, brown rice syrup, raw cane crystals, tricalcium phosphate, natural vanilla flavor, sea salt, carrageenan, xanthan gum, vitamin A palmitate, vitamin D-3, riboflavin (vitamin B-2). * = Grown and processed in accordance with the California Organic Foods Act of 1990.
**Wt/Vol., Packaging, Price:** Quart or half gallon Pure-Pak Carton. Half gallon retails for $3.59 (Berkeley, California 2/96).
**How Stored:** Refrigerated.
**Nutrition:** Per 1 cup (237 ml): Calories 80, calories from fat 20, total fat 2.5 gm (4% daily value; saturated fat 0 gm), cholesterol 0 mg, sodium 85 mg (4%), total carbohydrate 11 gm (dietary fiber 0 gm, sugars 9 gm), protein 4 gm. Vitamin A 10%, calcium 30%, vitamin D 30%, vitamin C 0%, iron 2%, riboflavin 30%. Percent daily values are based on a 2,000 calorie diet.
**New Product–Documentation:** Talk with Steve Demos (who phoned), CEO of White Wave. 1995. Nov. 22. This innovative new product will be launched in a very big way, nationwide, on January 8, 1996. The soymilk will be packaged in Pure-Pak cartons, like most milk, and sold refrigerated. The use-by date will be 35 days from the date of manufacture but it actually lasts 120 days. The milk will be made at a plant that is not owned by White Wave, but Steve hopes that White Wave will be making the product within 2 years and that it will be shipped in condensed form to 8 regional dairies, which will pack and distribute it.

The regular price (with no discounts) will be about $1.79 a quart. The product will compete based on the fact that (1) Consumers prefer this package to aseptic Tetra Brik packaging, and (2) Consumers prefer the flavor of this product to that of all other non-dairy beverages tested–including Rice Dream. The tests were run 3 times. The product is being marketed for use with breakfast cereal. Steve wants customers to first taste the product on the end of a spoon with cereal. It will not initially compete on price. It will be targeted initially to the natural foods market, primarily as a dairyless soy beverage. In addition it is organic, contains only 1% fat, is calcium fortified, etc. Steve's goal is to capture 10% of the market. Lactaid now has sales of $120 million a year. The market for lactose-free beverages is growing at a very fast rate.

News release from Holden McClure in Boulder, Colorado. 1996. Jan. 10. "Don't forget to drink your Silk. Vegetarian Cuisine company launches refrigerated soy beverage." The dateline is Tofu Town, USA. White Wave, Inc., one of the fastest growing vegetarian cuisine companies in the U.S., "announced today that it is entering the beverage market with the launch of Silk, a lactose-free, low-fat, refrigerated soy beverage to be sold in the dairy case. Packaged in a traditional milk carton, Silk is delicious and 100% dairyless. Beginning in February, Silk will be available in natural food stores across the country." In many blind taste tests, Silk was consistently preferred to the soy and rice beverages that consumers indicated they currently used. Silk will be sold in quart and half gallon cartons at a suggested retail price of $1.99–$2.49 and $3.99–$4.79 respectively. "Ken Vickerstaff, White Wave's VP of Sales and Marketing, believes positioning silk as a refrigerated soy beverage in a milk carton will be the key to success as White Wave enters this $100 million market. 'We're the first company to offer a nationally distributed soy beverage that isn't mispositioned. To date the category has been mispositioned, offering product in a square dry box at room-temperature. That is just foreign to how we eat." Silk is fortified with calcium plus vitamins A, B-2, and D, is low in fat (1% by weight), is made from organically grown soybeans, meets the American Heart Association guidelines and features the Heart Check seal. The motto: "White Wave Silk. Pour it on."

Letter from then talk with Dusty Cunningham of Pacific ProSoya Foods. 1996. Feb. 8. Her company makes the soymilk for Silk at their plant in British Columbia, then

ships it to the packer. It is not made at the ProSoya plant in Ontario. Talk with Mark Brawerman. 1996 Feb. 10. Pacific ProSoya now ships numerous tanker trucks of soymilk each week to a UHT [Ultra High Temperature] packer in the Bay Area. This is probably the soymilk used to make Silk. Note: Talk with George Conquergood of IPC. 1999. May 10. Starting in Jan. 1996, the soy base for this soymilk was made by Pacific ProSoya in British Columbia, Canada, then was sent in tanker loads to Ted Nordquist of TAN Industries for formulation at Avoset dairy [the Morningstar plant] in Gustine, California. Note: Laura Tewnion and Ann Shaw, who were in the lab at Gustine, helped Ted with the formulation. The Gustine plant had a UHT pilot plant. George has photos of the first tanker sent to Ted, with Lorne Broten and Dusty Cunningham standing by the tanker. Soy base or Soymilk processed by UHT has a longer shelf life than that processed by HTST [High Temperature Short Time]. UHT is also held for a shorter time at the higher temperature.

Talk with Jonathan Gordon. 1996. Feb. 21. Silk is being sold in two sizes, quarts and half gallons, with only one basic flavor for each size. The product is selling extremely well.

Talk with Steve Demos (who phoned). 1996. Feb. 23. The product was released on Jan. 15. in 226 A-level natural food stores nationwide and is selling very well, at the rate of 1,000 cases/week. Steve traveled 30,000 miles in 60 days to get Silk off the ground. White Wave will host the Silk Soirée dance at the Natural Products Expo at Anaheim in March.

Product (half gallon and quart) with Label purchased from Berkeley Natural Grocery Co. 1996. Feb. 28. Price of half gallon: $3.59. Expensive! Deep blue, light blue, white, red, and light brown. Front and back panels: Illustration of a stream of soymilk splashing onto a bowl of breakfast cereal topped with strawberries. “Dairyless Soy Beverage. Vitamin A, B-2, D * calcium enriched. Lactose free. Cholesterol free. Low in fat.” The American Heart Association logo shows a white check on a red heart: “This product meets American Heart Association dietary guidelines for healthy people over age 2 when used as part of a balanced diet.” A circular logo shows North and South America: “Made from Organic Soybeans.” “Low 1% fat.” Side panel: Cartoon motif. “Good morning. As you pour Silk over your morning cereal, ponder this. If cows ran the world, Silk would be our national beverage. Soy protein would probably look pretty hip. Good health would be in. Cholesterol would be out. In the Land of Silk and Honey, hunger is a thing of the past and stress is replaced with deep breathing. White Wave has labored steadily since 1977 to offer the world a taste of that calm. Many have said we should take our enthusiasm for good living and bottle it. We have. White Wave Silk. Pour it on. White Wave’s mission is to creatively integrate healthy, natural, vegetarian foods into the American diet.” Second side panel: “Not to be used as an infant formula.” It is “made from organic soybeans that are raised without herbicides, pesticides, or chemical additives.”

Talk with Richard Rose of Sharon’s Finest. 1996. March 5. White Wave’s Silk is being packaged at Avoset, a company in Gustine (south of Modesto), central California. Richard has heard that Silk has not been selling very well so far. “If it fails, it could put White Wave on the ropes.”

Back to back leaflet (5¼ x 7½ inches) on glossy card stock from Natural Foods Expo at Anaheim. 1996. March 15. Side 1 (color): “Get Fresh–White Wave Silk.” Side 2 (black-and-white): “New Silk. For cereal. Deliciously friendly to open, pour and store.”

Update: 1996. May 6. It costs about $4,000 to ship a tanker of soymilk from Vancouver (BC, Canada) to the Midwest.

Product with Label purchased at Open Sesame (natural food store) in Lafayette, California. 1998. Dec. 23. Plain quart of “Silk–Dairyless Soy Beverage” retails for $2.49. A quotation on one side titled “Something worth hanging onto” states: “Wish not so much to live long as to live well”–Benjamin Franklin.

“Silk–Soymilk is cool”–Oval shaped sticker on envelope sent by White Wave. 1999. Jan. 25. 2 inches long by 1¼ inches high. White on blue.

Talk with Denis Bolger of New York City. 2003. June 8. On sale at Pathmark supermarkets in New York City: Silk refrigerated for $0.99/quart in Vanilla, SoyaLatte, and Plain. Dec. 12-18. On sale at Pathmark: two ½ gallon cartons of Silk (Vanilla, Plain, or Chocolate) for $5.

2337. Cheney, Peter 1996. Toronto landmark comes tumbling down–at last: Final blast spells end of stubborn grain silo [Victory Soya Mills]. *Toronto Star (Ontario, Canada).* Feb. 12. p. A3.

• ***Summary:*** Discusses the demolition of the Victory Soya Mills’ buildings and silos. “After 52 years and two attempts to demolish it, Victory Soya Mills is no more.” Minneapolis explosives ace Eric Kelly toppled the Toronto landmark yesterday at 8 a.m.–as hundreds of curious onlookers watched. Built in 1944, during World War II, as a state-of-the art crushing plant; it had operated until 1991. However: “By the late 1980s, changes in the grain and transportation industries had made the plant outdated, with a dwindling work force.” In 1992 its owners had decided to demolish the huge structure, consisting of tall concrete silos (for storing grain) and the even taller head building, but there was a drawn-out political battle with “history buffs who wanted to save it.” The city council issued a demolition permit last year, but it has been a tough structure to dismantle.

Three large photos show the 20-storey head building: (1) As it begins to topple, like a giant monolith, all in one piece. (2) As it is half way down, at a 45 degree angle to the

ground. (3) As it crashes to earth, disappearing into a cloud of dust and rubble. Address: Staff Reporter.

2338. Lo, Francis. 1996. K.S. Lo died on 5 May 1995. Vitasoy went public several months earlier (Interview). *SoyaScan Notes.* Feb. 19. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Francis is the grandson of K.S. Lo (one of Mr. Lo's 18 grandchildren) and the son of Frank Lo. As a young man Frank studied cheese-making in Australia at the Queensland Agricultural College. Frank is currently in charge of new developments in China. Francis is presently a third year student at the University of Guelph in Canada, studying agricultural business. He would like to get some business experience before he goes to work for Vitasoy; he does not want to use the company as a training ground. Vitasoy shares were first sold to the public in about February or March 1995. Francis has a copy of the booklet that was published at that time. Address: Univ. of Guelph, Guelph, ONT Canada.

2339. Daller, Frank. 1996. Re: Present status of the SoyaCow. Letter to William Shurtleff at Soyfoods Center, Feb. 29–in reply to inquiry. 1 p. Typed, with signature on letterhead.
• ***Summary:*** ProSoya Inc. does "sell the small SoyaCow SC-20 but not to users in North America. This is because the system is not currently built to ASME standards and because America is lawsuit crazy. The SC-20 system is primarily for cottage industries and humanitarian applications in developing countries although it is also used as a pilot or lab-type system in North America. We can make a North American model with UL approval etc. but it would almost double the cost of the system. Because of this, we are primarily interested in the lower cost version.

"We are currently awaiting delivery of an Indian manufactured model of the SC-20 which will be available at a lower price even than the Canadian-made ones. We expect this system will be available for about US$5,000... It should be available in 60-90 days." Address: ProSoya Inc., 5350 Canotek Road, #7, Gloucester, ONT K1J 9C9, Canada. Phone: 613-745-9115.

2340. Behling, Ann. 1996. New technology makes soy foods tastier: Canadian firm makes concentrate for ice cream, milk, and yogurt. *Soybean Digest.* Mid-Feb. p. 56.
• ***Summary:*** About Pacific ProSoya Foods and Jersey Farm Soya Yogurt. Photos show: A label for Jersey Farm Soya Yogurt. The soymilk equipment inside Pacific ProSoya's plant at Surrey, British Columbia.

2341. *Bluebook Update (Bar Harbor, Maine).*1996. ProSoya finds new opportunities in Cuba. 3(1):3. Jan/March.
• ***Summary:*** Frank Daller of Canada has made three trips to Cuba and is planning a fourth this February, when he plans to return to Cuba with the head of a major Canadian agricultural equipment company to discuss possibilities of a joint venture company that would compliment the Soy Cubano program, as well as a separate initiative for the production of Canadian agricultural equipment in Cuba.

On another venture, Mr. Daller is working with Dr. Gilberto Fleites, a cancer surgeon from Havana, and a local entrepreneur to install a small SoyaCow SC20 in the first natural food/vegetarian restaurant in Havana. Dr. Fleites is working to build local awareness of the anti-cancer properties of soyfoods.

2342. Messina, Mark; Messina, Virginia. 1996. SoyFacts No. 11: Soyfoods & women's health (Leaflet). Lebanon, Indiana: Indiana Soybean Development Council. 2 p. Front and back. 28 cm. [21 ref]
• ***Summary:*** Contents: Introduction. Breast cancer. Menopause. Osteoporosis. Heart disease. Soy and fertility. Soyfoods in the diets of women.

"Menopause: The decrease in estrogen production that signals menopause can produce a variety of symptoms. These include difficulty in regulating body temperature that manifests as night sweats and hot flashes. However the severity of menopause symptoms varies throughout the world. For example, Asian women are typically one-third as likely as American women to report symptoms. Although, to some extent, this may reflect cultural differences regarding willingness to discuss these symptoms, there appears to be an actual difference in the severity and incidence of symptoms (Lock 1994). Soy consumption has been proposed as one explanation for these differences. The estrogenic activity of soybean isoflavones may help to offset the effects of reduced estrogen production by the ovaries. Even though soy isoflavones exhibit very weak activity (1/1,000 to 1/100,000 the potency of endogenous estrogen), in women consuming soyfoods, blood levels of isoflavones can be 1,000 times higher than endogenously produced estrogen levels (Xu et al. 1995). Most important, in a recent Australian study, researchers found that women who consumed 45 grams of soy flour per day experienced a 40 percent decrease in menopause symptoms (Murkies et al. 1995). Several studies examining the effects of soy on menopause symptoms are under way."

Note 1. One version of this leaflet was developed for consumers and another for dietitians. The project was funded by the Indiana Soybean Development Council.

Note 2. The issue of goitrogens / goitrogenic substances in soybeans and soyfoods is not discussed in any of these 11 leaflets. Address: 1. PhD; 2. MPH, RD. Both: Nutrition Matters, 1543 Lincoln St., Port Townsend, Washington 98368. Phone: 360-379-9544.

2343. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. Profiles: Paul Fox–"Beanuts are a tastier and healthier snack than peanuts." Feb. p. 7.
• ***Summary:*** Harrow-based entrepreneur, former soybean grower, and former supervisor at Allied Chemical, Paul Fox thinks soybeans make a near perfect snackfood. By next year he plans to introduce Beanuts, a type of soynuts, into Ontario food stores. He's been working on this idea since the late 1970s, but now he has assembled a team of marketing and production experts and is ready to go.

"Construction is ready to begin on a processing plant in Harrow to serve the markets in southern Ontario and nearby states. Construction of a $1 million plant is slated for North Bay this summer, with its output aimed at grocery and variety stores across Canada. Within the next 18 months, Fox expects the Beanut project to employ over 50 hourly workers, putting out the 40 gram packs at the rate of 25 million units a year at North Bay, and 40 million units a year in Harrow. Within five years, Fox expects the two plants to make soybean purchases of up to 500,000 bushels a year..." Fox plans to start making Beanuts from Ontario-grown Harovinton variety soybeans, which have a clear hilum and large size–for which he expects to pay a premium price. "We're aiming for a peanut look," he says.

The soybeans will be oil roasted in sunflower oil using a cooking system that Fox has spent a decade developing. By using his secret recipe and process, he is confident that Beanuts will be "superior to any of the products that are already on the American market." Fox plans to start with 3 flavors–salted, salt, and vinegar, and Cajun style. Most will be sold in 40 gram packs and retail for about 79 cents. His team is also developing chocolate coated Beanuts to be sold in foil packets. Fox has test-marketed Beanuts in southwest Ontario throughout the past year. One potential niche market is consumers who suffer from allergies to nuts.

The promotional campaign for Beanuts "will focus on lower saturated fat levels relative to peanuts, as well as the significant health benefits [from phytochemicals] that researchers are finding with soybeans, which are getting more and more media coverage."

Fox believes that the potential is unlimited. "Can you imagine when the big candy makers switch away from peanuts and start using soybeans in their chocolate bars."

Note: Paul Fox can be reached at Fox Food Incorporated, 1238 Gore Rd., Harrow, Ontario N0R 1G0, Canada. Phone and fax: 519-738-2178.

Talk with Janet Nauto of Ontario Soybean Growers Marketing Board (OSGMB). 1999. Jan. 12. This company had a product in test-market briefly, and in Nov. 1996 members of OSGMB took it to the Royal Winter Fair in Toronto and tried to help promote it. But even by Nov. 1996 he was basically out of business. He was a very big talker, got some promises of government funding, hired a marketing company that drew up a million-dollar marketing plan–but he had no money. OSGMB still has some of his gum-ball vending machines. but Mr. Fox never built a plant for making soynuts. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2344. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. Soybean board executive Susan Iler presents an award of honour to Dr. Dick Buzzell (Photo caption). Feb. p. 3.
• ***Summary:*** This photo shows both people standing and shaking hands. Buzzell, wearing a bear and a patterned sweater, recently retired as soybean breeder at the Harrow Research Centre. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2345. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. Roundup-Ready soybeans clear hurdle. Feb. p. 4.
• ***Summary:*** "Monsanto's Roundup-tolerant soybeans recently received approval from Agriculture & Agri-Food Canada for 'unconfined release into the environment, including feed use.' This means that Roundup-Ready varieties will be treated like any other soybean variety when it comes to testing in Ontario's soybean variety registration trials.

"Roundup-Ready soybean varieties will be available to Ontario growers following their registration in Canada. Their registration testing will occur in tandem with the seed multiplication process.

"Roundup-Ready soybeans still require approval for food safety prior to their sale for food use." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2346. Rayes, Kamal. 1996. Designing and developing the CIDA soy program in Sri Lanka. New developments with Plenty Canada (Interview). *SoyaScan Notes.* March 12. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Kamal designed and developed the CIDA soy program in Sri Lanka. In 1983 he was sent to Sri Lanka to look at an industrial soy project and possible work with soyfoods at the grass-roots level. He designed the project with two parts: (1) An industrial part, that never took off, because be thinks CIDA never understood what he was talking about, and (2) A grass-roots part, which did well. His grass-roots soyfoods project in Sri Lanka was the world's first. At the time INTSOY had a pilot plant in Gannoruwa with a food specialist. There was little or no soy industry in Sri Lanka at the time. Kamal designed a small soy plant ($3-4 million) but he got the richest man in Sri Lanka interested in getting involved. "He told me in about 1983 or 1984: 'If you build this plant and you give me four per years (2 people for 2 years) to show us how to manage it, I am willing to pay you back everything you put in and at the same time I will reserve (free of charge) 49% of the

equity of the plant for the farmers growing and delivering the soya beans.' He was owner of the Mercantile Bank in Colombo. The whole beautiful idea ever happened; it was too difficult for CIDA bureaucrats to understand. This would have been a first in the history of development." For details, call Mr. Jeyabalan in Toronto at 416-498-1394. He knows Ellen Jayawardene. He brought in Muttiah Jeyabalan to manage the Plenty Canada program. Kamal was later shifted to CIDA's program in Indonesia, but he was kept informed of developments in Sri Lanka. Then he took early retirement from CIDA. After a few years Plenty Canada started to fall apart. He thinks Larry McDermott was fired or left and there is a new board of directors. "Now they are almost folded. I think they are about to close shop." They were doing little by 1992. Kamal is a native of Egypt and is now age 64. He came to Canada 31 years ago; before that he was involved with international development at the United States. Now he is thinking of doing something with soymilk, soy yogurt, and soy ice cream in Ontario. He wonders whether the ProSoya technology in Ontario is superior to the one that INTSOY is promoting. Address: 296 Sherwood Dr., Ottawa, ONT K1Y 3W6, Canada. Phone: 613-728-2792.

2347. Canadian Soybean Export Association. 1996. New Canadian Soybean Association forms (News release). c/o Ontario Soybean Growers' Marketing Board, P.O. Box 1199, 180 Riverview Dr., Chatham, ON N7M 5L8, Canada. 1 p. March 19.
• ***Summary:*** "The Canadian Soybean Export Association [CSEA], held their inaugural meeting today [March 19, 1996] in Wallaceburg, Ontario. The meeting was hosted by Hazzard's Farm Service Limited, of Wallaceburg. The elected executives from this new association include Garth Baxter, Maple Leaf Foods International, as Chairperson; Sue Robert, W.G. Thompson & Sons Limited, as Vice-Chairperson; Ron MacDougall, Ontario Soybean Growers' Marketing Board, as Executive Member; and Kim Cooper, Ontario Soybean Growers' Marketing Board, as Secretary-Treasurer.

CSEA "is a voluntary association of members of the Canadian soybean industry, working as a team, to promote the exports of Canadian soybeans and soya products into world markets." CSEA's objectives "are to encourage all members to work in a co-operative spirit to promote exports of Canadian soybeans, and to facilitate export promotion activities that support the CSEA mission statement.

"Soybeans are the second most important oilseed crop in Canada, next to canola. Soybean production in Canada has increased substantially from 600,000 tonnes in 1981, to 2,279,000 tonnes in 1995, which translates to a 280% increase in the last 14 years.

"The majority of Canada's soybeans are crushed to produce soybean oil for food and industrial uses, and soybean meal, which is mainly used as a protein supplement for livestock feeds. In recent years, the two Ontario soybean crushers have processed approximately 1,000,000 tonnes of soybeans annually. An additional 500,000 tonnes are destined for export markets, and of this amount, over 1,000,000 tonnes are exported for soya food processing, mainly in South East Asia. The Canadian Soybean Export Association is targeting this food market usage for continued expansion for Canadian soybeans and soya products.

"For more information on the soybean industry in Canada, or about the Canadian Soybean Export Association, please contact Mr. Kim Cooper, Ontario Soybean Growers' Marketing Board in Chatham, at (519) 352-7730." Address: Chatham, Ontario, Canada. Phone: 519-352-7730.

2348. Yoshihara, Yasuo. 1996. Update on Shin-Mei-Do Miso Co. (Interview). *SoyaScan Notes.* March 22. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Yasuo speaks with a slight Japanese accent. Shin-Mei-Do Miso Co. is active and growing. They make brown rice miso and barley miso, each sold in 450 gm and 4.5 kg plastic tubs. Lulu does the bookkeeping. The demand for their miso on the west coast of Canada is increasing so they stopped distributing to Eastern Canada. Within the last week a person from eastern Canada called him about starting a miso factory in eastern Canada, and he had a similar enquiry last year. He may be interested in teaching potential miso makers as an apprentice for pay–depending on the conditions. Shin-Mei-Do sells all of its miso to natural foods wholesalers. Amano in Vancouver makes most of the miso sold in Oriental food stores in British Columbia. Moreover, a huge amount of miso (many tons) is imported from Japan. Westbrae packages imported Japanese miso and has nothing to do with Amano–as far as Yasuo knows. Yasuo doubts that Amano ever made miso for Westbrae. Yasuo has never made miso to be sold under another brand. Shin-Mei-Do is basically still a very small operation. Yasuo does not want to become a big company where the miso is made largely by machines. Address: Shin-Mei-Do Miso Co., 5 Wren Road, Denman Island, BC, Canada V0R 1T0. Phone: 604-335-0253.

2349. **Product Name:** Just Like Ground! (Fat Free–Meatless) [Original, Italian].
**Manufacturer's Name:** Yves Fine Foods. A subsidiary of Yves Veggie Cuisine, Inc.
**Manufacturer's Address:** 1138 East Georgia Street, Vancouver, BC, V6A 2A8, Canada. Phone: 604-251-1345.
**Date of Introduction:** 1996. March.
**Ingredients:** Water, textured soy protein, textured wheat protein, matural flavor, soy sauce, malt extract, rice starch, wheat germ, oat bran, salt, tomato paste, onion powder, yeast extract, evaporate cane juice, garlic powder,

carrageenan, vitamin B-1 (thiamin hydrochloride), vitamin B-2 (riboflavin), vitamin B-3 (niacinamide), vitamin B-6 (pyridoxine hydrochloride), vitamin B-12 (cyanocobalamin), calcium pantothenate, vitamin D-3, reduced iron, zinc oxide.
**Wt/Vol., Packaging, Price:** 12 oz (340 gm). Retails for $2.99 (1997/04, Lafayette, California).
**How Stored:** Refrigerated or frozen.
**New Product–Documentation:** Ad (full-page, color) in Natural Foods Merchandiser. 1997. March. p. 99. "Introducing Just Like Ground! Our new premium meatless ground round." "Use *Just Like Ground!* in recipes calling for ground meat–pasta sauces, Shepherd's pie, lasagna, Sloppy Joe's, and much more. Made from 100% vegetable sources, *Just Like Ground!* is ready to use and available in two delicious flavors, Original and Italian."

This ad also appeared in Vegetarian Times. 1997. May. Inside rear cover.

Product with Label purchased at Safeway (Lafayette, California). 1997. April 27. Red, yellow, and black on white. "Fat free. Contains no meat." Soyfoods Center taste test. 1997. May 1. Has a rather strong smell and taste of dog food–which comes from textured soy flour.

2350. Montanaro, Pamela. 1996. Attending the First National Soybean Workshop in Cuba (Interview). *SoyaScan Notes.* April 15. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Pam Montanaro, Coordinator of the Cuba Campaign Department of Global Exchange, just returned from 2 weeks in Cuba. She led an alternative medicine group during the first week. While there, she attended the First National Soybean Workshop *(Primer Taller Nacional Soya),* 2-day meeting held on 11-12 April 1996 at the Food Research Institute outside Havana. It was attended by about 200 Cubans, and many important Cubans were there, including Jesu Montané Oropesa, a top advisor to Fidel Castro, and Vilma Espín, head of the Federation of Cuban Women *(Federation de Mujeres Cubanos, FMC).* One of the founders of the Cuban revolution in the 1950s, she is married to Raul Castro (Fidel's brother), is a chemist or biochemist, speaks good English, and has been involved with popularizing soybeans and soyfoods in Cuba for many years. In the early 1960s Vilma organized a Cuban group named "Friends of the Soybean."

The afternoon sessions on the first day were divided into two parts: Soybean production, and soybean utilization. The first was open to everyone, the second was restricted to speakers only, because of Cuba's proprietary soymilk and soy yogurt technology. Dr. Gilberto Fleites, a top Cuban cancer surgeon who is also a vegetarian, gave a presentation to both sessions on soy, diet and health, with an excellent slide show that he has developed; he answered many questions and received many requests for talk to other organizations.

The conference was attended by representatives from both agriculture and food processing from every Cuban province. The food representatives brought samples of their best soy yogurt and soy cream cheese. At the conference there was a contest to see which organization had the best soy yogurt. Las Tunas won, with a special award going to a factory in Havana. In all, the conference was very up-beat. Video- and audio tapes were made of most of the sessions, and the proceedings are expected to be available in Spanish. Pam has a Spanish language conference agenda.

At the conference, Pam learned that two other foreign groups are apparently involved with growing soybeans in Cuba. Vilma Espín's women's group (FMC) has a project very similar to Global Exchange's funded by Oxfam Canada and now underway in the easternmost province of Cuba, Santiago de Cuba (near Guantanamo Bay, the U.S. naval base). The project is getting its seeds from INIFAT, but there seems to be poor communication between INIFAT and this project, to the extent that Pam wondered if a rivalry might have developed between them. Oxfam Canada first began work in Cuba in Jan. 1995 and Pam helped to interest them in work with soy. Canadians Minor Sinclair and Sheila Katz are now involved with this soy project. A second Cuban group is also working on this project, the National Association for Small-Scale Agriculture *(Association Nacional de Agricultura Pequena, ANAP).* They just had their first harvest and got a good yield of about 2 tons of seed per acre. Minor (who now lives in Havana with his wife, Martha Thomson) in writing up a report on the project for Pam. Pam's combine has not yet arrived in Cuba.

An Italian NGO (non-governmental organization), which is part of the European Union, is said to be trying to do another soy project, and has offered to invest $1 million in the project.

During 1996, nationwide, Cuba hopes to grow between 6,700 ha and 8,040 ha of soybeans (500 to 600 caberillas; 1 caberilla = 13.4 ha). If all goes well, this area would provide them with about 15,000 metric tons of soybeans–enough for all their food needs but only about 10% of their total needs including vegetable oil and livestock feed.

Only two foreigners attended the soy conference–Pam and a man from Mexico. Pam heard that Cuba has signed a contract to export its soymilk manufacturing technology to an organization in Semaya, Mexico. This would be Cuba's first known export of such technology. Last year Cubans did a lot of traveling throughout Latin America looking for customers.

Tito Nuñez's vegetarian restaurant in the Botanical Garden, next to a Japanese garden, is just lovely and becoming very popular. The food is organically grown and presented in a beautiful way. Address: Coordinator of Soy Cubano! Company, Food and Medicine Campaign, c/o

Global Exchange, 2017 Mission St. #303C, San Francisco, California 94110. Phone: 415-255-7296 or 415-558-8682.

2351. Mehra, Vinod K. 1996. Re: History of Maple Leaf Mills and ADM Agri-Industries Ltd. Letter to William Shurtleff at Soyfoods Center, April 16–in reply to inquiry. 2 p. Typed, with signature on letterhead.
• ***Summary:*** During World War II, in about 1942-43 [sic], a company named Toronto Elevators began crushing flaxseed, primarily for the linseed meal. [Note: Toronto Elevators. Ltd. began crushing soybeans in Toronto in 1938]. At the end of the war [in 1944 in Toronto], Victory Mills built a solvent extraction plant for soybeans, then in 1951 Maple Leaf Mills also built a soybean crushing plant; that year Maple Leaf first began crushing soybeans. ADM acquired Maple Leaf Monarch in July 1985 [on about July 19].

Note: Mr. Mehra's letterhead reads "ADM Agri-Industries Ltd." The company name printed on the envelope is the same. Maple Leaf Monarch is not mentioned in either place. But in the 1994-95 Soya Bluebook Plus (p. 94) the company's entry reads: "A.D.M. Agri-Industries Ltd. Affiliate of Archer Daniels Midland Company d/b/a Maple Leaf Monarch."

Note: A review (in May 1996) of Windsor newspaper articles shows that Maple Leaf Monarch opened in Windsor (Ontario, Canada) at 5550 Maplewood in July 1979. This Windsor plant replaced an aging Maple Leaf Mills crushing plant on the Toronto waterfront. The latter plant may have been the original Toronto Elevators Ltd. Address: ADM Agri-Industries Ltd., P.O. Box 7128, 5550 Maplewood Drive, Windsor, ONT Canada N9C 4G9. Phone: 519-972-8100.

2352. Roller, Ron. 1996. Update on the soymilk industry and market in the USA (Interview). *SoyaScan Notes.* April 16. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** In October 1993 Ron estimated (based on a lot of reliable information he had collected) that the size of the soymilk market in the USA and Canada was 9.8 million gallons, up from 8.1 million gallons in 1992. Now he would estimate (without a lot of reliable facts) that this market is about 15 million gallons. Since Dr. James Anderson's article appeared in the *New England Journal of Medicine* on 3 August 1995, and especially during the last 6 months, the soymilk market has expanded rapidly, almost exponentially. Many new consumers have started to drink soymilk, largely for its health benefits. Because of this significant expansion in the customer base, more soymilk is being sold in supermarkets. Ron estimates that about 15% of Edensoy is sold in supermarkets. Address: President, American Soy Products, 1474 N. Woodland Dr., Saline, Michigan 48176. Phone: 313-429-2310.

2353. Couch, Evelyn. 1996. Beanuts best of both worlds. *Farm & Country (Toronto, ONT, Canada).* April 23.
• ***Summary:*** Paul Fox of Harrow, a former soybean grower and supervisor at Allied Chemical in Amherstburg, has developed Beanuts, a snack food made from soybeans for those allergic to peanuts. He is now constructing a processing plant in Harrow. Presently he is buying the Harovinton variety (a large-seeded bean with a clear hilum) through the Wheatley elevator. After ten years of experimenting he has perfected a recipe (which is secret) that uses sunflower oil–which is low in saturated fats and has a good health image. His three flavors are salted, salt and vinegar, and cajun. In the next 3-5 months he hopes to have chocolate-covered Beanuts, Beanut butter [soynut butter made from Beanuts], and Beanut brittle on the market. A photo shows Fox, who projects that by the year 2000 some 500,000 bushels of soybeans will be turned into Beanuts. Note: His products are apparently not yet on the market.

2354. *Bluebook Update (Bar Harbor, Maine).*1996. Daller resigns from ProSoya. 3(2):3. April/June.
• ***Summary:*** "Frank Daller, president of ProSoya Inc. in Ontario, Canada, is resigning to develop a non-profit corporation dedicated to distributing soyfood technology to developing countries and humanitarian applications." Mr. Daller will continue as a partner and director of ProSoya; Raj Gupta. ProSoya's founder, will assume the role of president.

2355. **Product Name:** Real Roasted Soys [Sour Cream and Onion, and Maple Syrup Coated].
**Manufacturer's Name:** Dyshar Farms Ltd.
**Manufacturer's Address:** R.R. #3, Woodstock, ONT N4S 7V7, Canada. Phone: 519-537-2199.
**Date of Introduction:** 1996. April.
**How Stored:** Shelf stable.
**New Product–Documentation:** Talk with Sharon Hart. 1999. April 20. These two flavors were introduced in April 1996.

2356. Hulse, Joseph H. 1996. Soybeans: Bio diversity and nutritional quality. In: Alex Buchanan, ed. 1996. Proceedings of the Second International Soybean Processing and Utilization Conference: 8-13 January 1996, Bangkok, Thailand. Bangkok, Thailand: Printed by Funny Publishing Limited Partnership. Distributed by The Institute of Food Research and Product Development, Kasetsart University. xviii + 556 p. See p. 1-13.
• ***Summary:*** Contents: Introduction. Origins and dissemination. Processed foods from soybeans: Oriental soy foods, commercial soy products. Nutritional quality: Soybean lipids, proteins. Soybeans and chronic diseases: Cholesterol and cardiovascular diseases. Antinutrients in

soybean products: Oligosaccharides, trypsin inhibitors, phytic acid, saponins, isoflavones, soybeans and anticarcinogenesis. Future for soybeans in human nutrition: Nutrition and chronic diseases, economic and ecological.

Tables: 1. Oriental soy products (nutritional composition). 2. Commercial soy products (nutritional composition). 3. Amino acid patterns (required by a child age 12 years, adult, in defatted soy flour, in isolated soy protein). Address: Siemens–Hulse International Development Associates, Inc., 1628 Featherstone Drive., Ottawa K1H 6P2, Canada.

2357. Ma, C.Y.; Buzzell, R.I.; Jessop, D.B.; Butterly, B.R. 1996. Evaluation of soybeans for tofu processing. In: Alex Buchanan, ed. 1996. Proceedings of the Second International Soybean Processing and Utilization Conference: 8-13 January 1996, Bangkok, Thailand. Bangkok, Thailand: Printed by Funny Publishing Limited Partnership. Distributed by The Institute of Food Research and Product Development, Kasetsart University. xviii + 556 p. See p. 171-76. [7 ref]
Address: 1. Centre for Food & Animal Research; 2-4. Harrow Research Centre. All: Agriculture & Agri-Food Canada, Ottawa, Ontario, Canada.

2358. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. Soybeans on the Internet. April. p. 4-5.
• ***Summary:*** A recent search for the word "soybeans" on the Webcrawler search engine found 250 different Web sites. Most of these are based in the USA, but some are in Canada. The best site for soybean growers is StratSoy, which was set up using funding from the United Soybean Board. The Homepage contains 6 choices: About StratSoy. What's new? Organizations. Resources. Research Database. Q&A–Ask an expert.

Other sites (whose Web addresses are given) include: Soya Bluebook Plus On Line, Chicago Board of Trade, Soyfoods Directory, Environment Canada, ACEIS, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Farmers Online, Ridgetown College, University of Guelph, and Ontario Agriculture Homepage. A recipe for tofu (obtained from the Internet) is given. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2359. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. Michigan and Ontario growers have much in common. April. p. 5.
• ***Summary:*** Discusses the increasing cooperation between soybean organizations from Michigan and Ontario because of common basic concerns related to soybean production and marketing. The main organizations in Michigan are the Michigan Soybean Promotion Committee (MSPC) and the Michigan Soybean Association (MSA). There are 10,000 soybean growers in Michigan and twice that many in Ontario. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2360. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. Profiles: CanAmera. April. p. 7.
• ***Summary:*** CanAmera is Canada's largest oilseed processor, with five crushing plants and five refineries strategically located across Canada. Most Canadians eat CanAmera products (such as margarine or vegetable oils) at every meal. "Canadians don't see the name CanAmera. Instead, they see the brand names of a long list of industry leading products, which are actually made and packaged at CanAmera plants... For Ontario's soybean growers, however, CanAmera is a big name. The Hamilton plant processes 45% of Canada's soybean crush... A major expansion project that is under construction will boost soybean capacity by nearly 25% in the first stage with a further 25% increase in 1997." Ontario's only other large-scale crushing plant is the ADM facility at Windsor. The two facilities are expected to crush 1.6 to 1.7 million tonnes (59 to 62 million bushels) of Ontario's forecasted 1.9 million tonne harvests in upcoming years.

A photo shows Murray Davis, Senior Vice President of Trading and Marketing. "Davis would like to see Ontario soybean growers shift more of their focus towards the domestic crush market instead of exports." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2361. Osho, S.M. 1996. Fortification and enrichment of African diets using soybeans. In: Alex Buchanan, ed. 1996. Proceedings of the Second International Soybean Processing and Utilization Conference: 8-13 January 1996, Bangkok, Thailand. Bangkok, Thailand: Printed by Funny Publishing Limited Partnership. Distributed by The Institute of Food Research and Product Development, Kasetsart University. xviii + 556 p. See p. 314-21. [15 ref]
• ***Summary:*** Contents: Abstract. Introduction. Materials and methods: Research was conducted to incorporate soybeans, on a household scale, into traditional root and tuber crops (e.g., cassava), cereals (e.g., maize, sorghum, millet, rice), developed appropriate processing techniques for making tofu and soy tempe [tempeh] based products, used an extruder to develop commercial products containing soy, disseminated the technologies developed to rural households and small-scale companies.

Results and discussion: A good example of how soybean has improved nutritional values is by fortification of cassava and gari, quality and acceptability of local soft cheese *(warankashi*, made by coagulating cow's milk with an aqueous extract from the leaves of the sodom apple *(Calotropis procera))*, and soybean curd (tofu), tempe is a nutritious Oriental food.

Tables: (1) Nutrient composition of local gari and fortified soybean gari. Four columns. (a) Nutrients. (b)

Control gari. (c) 75% cassava + 25% soybean milk residue [okara]. (d) 75% cassava + 25% whole soybean paste.

(2) Sensory evaluation of soygari compared with local gari. Gari fortified with okara (overall acceptability 6.7) was almost as well accepted as traditional gari (6.8).

(3) Chemical composition of local cheese (warankashi) and soybean curd (tofu).

(4) Sensory evaluation scores for warankashi (overall acceptability 6.4) and tofu (5.0).

(5) Chemical composition of tempe-fortified maize based weaning foods (dry weight basis).

"Conclusion: Through aid from the International Development Research Centre (IDRC) Canada, the International Institute of Tropical Agriculture (IITA) is collaborating with national programs in Nigeria and recently Ghana, Cote d'Ivoire and Benin to develop household and small-scale processing techniques for soybean. The project is also planning to extend coverage to other African countries. The future of soybeans looks bright in Africa." Address: International Inst. of Tropical Agriculture, Oyo Rd., PMB 5320, Ibadan, Nigeria.

2362. **Product Name:** Silk (Soymilk Sold Refrigerated in Quart Pure-Pak / Gable Top Cartons) [Chocolate].
**Manufacturer's Name:** White Wave, Inc. (Product Developer-Distributor). Made in Canada and California.
**Manufacturer's Address:** 6123 E. Arapahoe Rd., Boulder, CO 80303. Phone: 303-443-3470.
**Date of Introduction:** 1996. April.
**Ingredients:** May 2000: Filtered water, organic whole soybeans*, organic raw cane crystals*, cocoa (Dutch process), calcium carbonate, natural vanilla flavor, sea salt, carrageenan, vitamin A palmitate, vitamin D-2, vitamin D-3, riboflavin (vitamin B-2), vitamin B-12. * = Grown and processed in accordance with the California Organic Foods Act of 1990.
**Wt/Vol., Packaging, Price:** Quart Pure-Pak Carton.
**How Stored:** Refrigerated.
**Nutrition:** Per 1 cup (240 ml): Calories 120, calories from fat 20, total fat 2.5 gm (4% daily value; saturated fat 0 gm), cholesterol 0 mg, sodium 95 mg (4%), total carbohydrate 18 gm (dietary fiber 0 gm, sugars 14 gm), protein 5 gm. Vitamin A 10%, calcium 30%, vitamin D 30%, vitamin B-12 50%, vitamin C 0%, iron 2%, riboflavin 30%. Percent daily values are based on a 2,000 calorie diet.
**New Product–Documentation:** Carton with Label sent by James Terman of White Wave. 2000. May 11. 2.75 by 2.75 by 8¼ inches. Tetra Rex package. "Organic–Third party certified. Calcium enriched. Low 1% fat & vitamin enriched." Talk with James Terman of White Wave. 2001. May 29. Silk chocolate in quarts was introduced in April 1996.

2363. Riddle, Kitty. 1996. Re: Maple Leaf Monarch and the soybean industry in Windsor and Essex County, Ontario, Canada. Letter to William Shurtleff at Soyfoods Center, May 2–in reply to inquiry. 2 p. Typed, with signature. [2 ref]
• ***Summary:*** Kitty photocopied 16 articles on soybeans and Maple Leaf Monarch from the Windsor (Daily) Star from 20 Jan. 1948 to 23 Sept. 1986. These articles indicate that: (1) Maple Leaf Monarch opened in Windsor (Ontario, Canada) at 5550 Maplewood in July 1979; (2) This Windsor plant replaced 'an aging Maple Leaf Mills crushing plant on the Toronto waterfront'; and (3) Maple Leaf Mills became active in oilseed processing in 1941.

"I did not locate any references to Toronto Elevator or Maple Leaf Mills in our holdings of Windsor City Directories beginning in 1891. There was a Maple Leaf Milling Co. on Montreuil Avenue beginning in 1929 to 1958 and on Crawford Avenue from 1959 to 1966 but they were agents of flour and cake mixes." Address: Literature & History Div., Windsor Public Library, 850 Ouellette Ave., Windson ONT N9A 4MB, Canada. Phone: (519) 255-6770.

2364. *SoyaScan Notes.*1996. Who is making Westbrae's soymilk (Overview). May 3. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Until recently, Westbrae's soymilk (not including its Malteds) was being made by several different companies in different parts of the USA: (1) Most of it was made by Pacific Foods of Oregon, in Tualatin, Oregon. (2) Some of it was made by Nutricia at the old Loma Linda Foods plant in Mt. Vernon, Ohio. (3) Not long after that plant was taken over by Carnation / Nestle, Westbrae's production was shifted to Bill Bolduc in Ohio. In mid-1993 he purchased a small soymilk plant at which he made plain, unpasteurized/unsterilized soymilk, then sent it northward to Parmalat Foods (5252 Clay Ave., Wyoming, Michigan 49548. Phone: 616-538-3822). Parmalat is a huge and very significant Italian food company that is the biggest user of Tetra Pak Aseptic packaging in the world. Parmalat packaged the soymilk for Westbrae. As of May 1996, none of the above 3 companies make soymilk for Westbrae any longer.

Then in mid-1995 Bolduc was forced to declare bankruptcy, and apparently the relationship between Westbrae and Pacific Foods was not satisfactory for Westbrae. So Westbrae approached Raj Gupta at ProSoya Inc. in Ontario, Canada. In late April 1996 ProSoya started to make Westbrae's soymilk, apparently using their full capacity of 1-2 tankers a week, which is about 45,000 pounds or 20,000 liters a week. The product is probably shipped to Farmland Dairies, a packer in New Jersey, where it is packed in Westbrae's new 2-liter Combibloc cartons. ProSoya in Ottawa is also obligated to do quite a bit of R&D work for the Canadian government. It is not clear why or what kind of compensation they receive for this.

The rest of Westbrae's soymilk is made by Northern Milk Products (related to SunRich) in Alexandria, Minnesota. Several tankers a week are shipped to Parmalat in Michigan.

ProSoya would like to set up a soymilk plant with Westbrae (probably in the USA) on a joint venture basis.

2365. Gupta, Raj. 1996. Update on ProSoya Inc., International ProSoya Corporation (IPC), and Pacific ProSoya Inc. (Interview). *SoyaScan Notes.* May 9. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** There are three closely related companies that use the word "ProSoya" in their name. They all exist to develop partnerships with companies which may be interested in exploiting patented soymilk technologies. (1) ProSoya Inc., which was the original company, designs, develops, and manufactures soymilk equipment. Raj owns 55% of the shares in this company, Lorne Broten owns 10-12%, and the remainder is owned by others. (2) IPC (International ProSoya Inc.) is a company that licenses soymilk equipment and technology. ProSoya Inc. has licensed to Lorne Broten and IPC the rights to license (not sell) SoyaCow soymilk technology, through joint ventures, in North America. IPC sells equipment only outside of North America where it has no patent protection. Raj owns about 5% of the stock in IPC, and Lorne holds the controlling interest. (3) Pacific ProSoya Inc. makes soymilk in British Columbia. Raj and Lorne are good friends and on good terms with one another. Address: 5350 Canotek Road, #7, Gloucester, Ottawa, ONT, K1J 9C9, Canada. Phone: 613-745-9115.

2366. Sheehan, Daniel M. 1996. More about phytoestrogens and isoflavones from soybeans (Interview). *SoyaScan Notes.* May 15. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Dr. Sheehan heard from a colleague in Canada that the soy protein isolates used in infant formulas in Canada have most of the phytoestrogens removed. The source of that information was Mr. Marshall Marcus of Protein Technologies International.

People use terms such as phytoestrogens or isoflavones differently depending on their background and orientation. For example, people interested mostly in biological activity tend to use the term "phytoestrogens," whereas those interested mostly in chemical structure tend to use the term "isoflavones." Additional terms include "flavonoids" (pronounced FLAY-vuh-noids, which refers to a large class of chemicals), and "isoflavonoids" (which are isomers of the flavonoids). "Genistein" and "daidzein" are what chemists call "trivial names." Real chemists provide the actual name of the chemical structure. Note: The first isoflavone found in tempeh was 6,7,4'-trihydroxyisoflavone.

Not all isoflavones are phytoestrogens; only some have biological activity as estrogens, and most of them are inactive. Genistin is just a conjugated genistein. The conjugated forms such as genistin and daidzin are not biologically active, as such; the glucoside linkage must be cleaved by intestinal bacteria before they become biologically active. Biologists usually use the term "prohormones" to refer chemical substances such as daidzin or genistin; they are precursors of hormones that require metabolic action before they become active. So when we eat a soyfood such as tofu, the biologically inactive prohormones are converted to active hormones in our digestive system. On the other hand, equol has estrogenic activity, but it is a metabolite of genistein. Of the three major conjugated forms in soybeans, daidzin, genistin, and equal, all of the digested forms have biological activity. Address: Dep. of Health and Human Services, Food and Drug Administration, National Center for Toxicological Research, Div. of Reproductive and Developmental Toxicology, Jefferson, Arkansas 72079-9502, and Dep. of Biochemistry, Univ. of Arkansas for Medical Sciences, Little Rock, AR 72205. Phone: 501-543-7561.

2367. Kuhn, Mary Ellen. 1996. Soy in the spotlight: Disease-fighting benefits may change the image of the once-lowly bean. *Food Processing (Chicago).* May. p. 52-53, 55, 58.
• ***Summary:*** This is a cover story; on the cover is written: "Unlocking the secrets of soy," with four large color photos. The article begins: "What a difference a couple of decades make." Twenty or 30 years ago, most foodservice operators and consumers used soy with hesitation, sometimes scornful comments. "Today, however, the once-maligned soy protein has a much better image, thanks to a fast-mounting stack of research data suggesting it may help prevent and treat high blood cholesterol, cancer, osteoporosis, and symptoms of menopause." And this good news has begun to reach health and nutrition professionals. With better products on the market, "soyfoods marketers may soon be dealing with a new generation of mainstream consumers who–far from spurning soy-based products–actively seek them out.

"Much of the current soy research is focused on isoflavones, a unique class of phytoestrogens or plant hormones found primarily in soy protein." The main soy isoflavone is genistein. Now soyfoods manufacturers are starting to take isoflavone content into consideration when they formulate, label, and promote their products. The isoflavone content of unprocessed soybeans can vary considerably among varieties, years, and place of harvest. Heat treatment does not appear to significantly reduce isoflavone content, but an alcohol wash (used with most soy protein concentrates and isolated soy proteins) removes most isoflavones in the product. The well-known Supro

brand of isolated soy proteins are not subject to an alcohol wash, which helps preserve their isoflavone content.

Rick McKelvey, president of the Soyfoods Association of America, has attended the American Dietetic Association show for the past two years. Last year, most of the questions he heard were: "What is this soy stuff that I'm hearing about?" This year's questions concerned the level of isoflavones in specific products. "This shows how far we've come in the bast year," he observes.

ADM, which could easily extract isoflavones from soybeans and sell them has decided not to do so. Jerry Weigel, PhD, who is ADM's vice president of corporate nutrition and regulatory affairs thinks it is probably not legal to sell isoflavones because they do not have GRAS (Generally Recognized as Safe) status or food additive status. Few soyfoods marketers are presently publicizing the isoflavone or genistein content of their products or making specific health or disease-prevention claims.

William Helferich, PhD, an associate professor at Michigan State University's Department of Food Science and Human Nutrition, has been studying dietary phytoestrogens in laboratory animals for 3 years. He has found that "genistein can stimulate estrogen-responsive breast cancer-cell growth in cultured cells and in animals implanted with these cells. He believes that women at risk for estrogen-dependent forms of breast cancer should not consume high levels of phytoestrogens." Most researchers are concerned about consumers taking isoflavone supplements or pills. Yet such products are now on the market and they acknowledge that some consumers will be attracted to them, instead of simply increasing the level of soyfoods in their diet, eating a healthful, balanced diet, and living and healthy lifestyle. Photos show: A jar of Morningstar Farms Roasted Soy Butter (soynut butter) which will be introduced this spring. Jan Remak, president of marketing for Vitasoy U.S.A.

One sidebar, titled "Probing the soy/health connection," discusses the research of Dr. James Anderson and Mark Messina, PhD. "Scientists theorize that phytoestrogens in soy might help compensate for the loss of hormonal estrogen women experience at menopause."

Another sidebar, "Boom times for the bean," notes that starting soon after the research study by Dr. James Anderson was published in August 1995, many soyfoods companies experienced a substantial increase in sales. Peter Golbitz notes that "After years of steady 10% to 15% annual growth, soyfood sales have soared by about 30% in the past year... Many marketers of meat and dairy analogs are reporting sales increases of more than 100%." A 1995 study by the Soyfoods Association of America found that 75% of Americans have heard of tofu, 55% of soymilk, and 50% of soy burgers. Golbitz adds that in Australia, where soymilk based on soy protein isolates is widely available, per capita soymilk consumption is at least three times what it is in the USA. Vitasoy has adopted a niche-market approach to selling its soymilk; it adjusts the amount beany taste according to the taste preferences of each market. Address: Senior Editor.

2368. Second International Symposium on the Role of Soy in Preventing and Treating Chronic Disease: September 15-18, 1996. Brussels Conference Center, Brussels–Belgium. 1996. American Soybean Assoc., Rue du Commerce 20-22 Box 4, 1010 Brussels, Belgium. 23 p. 30 cm.
• ***Summary:*** The cover of this attractive booklet has dark green ink on natural beige paper, with a square photo of soybeans in the middle. Contents: Invitation from the chairperson. The Second International Symposium On the Role of Soy in Preventing and Treating Chronic Disease: agenda. Satellite Symposium: agenda. Important deadlines and addresses. Instructions for abstracts. General information. Introducing Belgium and Brussels. Registration. Hotel accommodation. Social program. Symposium registration form. Hotel accommodation form. Social program form.

This symposium is being organized by Mark Messina, PhD (Chairman, USA), Roger Leysen, PhD (Secretary, Belgium), and Koen Descheemaeker, PhD (Scientific coordinator, Belgium). The international scientific advisory board consists of 12 members: Herman Adlercreutz, M.D. (Finland); Guiseppe D'Amico, M.D. (Italy); Stephen Barnes, PhD (USA); John Erdman, PhD (USA); Bernard Guy-Grand, M.D. (France); Takemichi Kanazawa, M.D. (Japan); Jean-Michel Lecerf, M.D. (France); Erik Muls, M.D. (Belgium); Marcel Roberfroid, PhD (Belgium); Risto Santti, M.D. (Finland); Cesare Sirtori, M.D. (Italy); Kurt Widhalm, M.D. (Austria).

Tentative agenda: Sunday, Sept. 15. Welcome and opening remarks. Overview of diet and cancer. Biotechnology of the soybean. Monday, Sept. 16. Soy and kidney function. Soy and bone health. Soy and heart disease: Hypocholesterolemic effects of soy (basic, mechanisms). Tuesday, Sept. 17. Soy and heart disease: Effects of independent cholesterol reduction. Soy and cancer: Animal studies, soybean anticarcinogens / anticancer mechanisms. Wednesday, Sept. 18. Soy and cancer: Human studies. Hormonal effects of soy.

Satellite symposium: A special satellite symposium will be held on Thursday, September 19, at the Sheraton Hotel, Place Rogier, Brussels; it will focus on two areas. The morning session on "Current understanding of soy and infant health" has been organized to better understand the effects of soy protein formula in infants and soyfoods in infants and young children–with particular emphasis on soybean isoflavones. The afternoon session on "Soybean isoflavones: measurement, levels in foods, and pharmacokinetics," will focus on isoflavone absorption and

metabolism, and methodology for quantifying isoflavones in food and biological matrices.

The cost of both symposia, including lunches but hotel accommodations, for a non-student paid before Aug. 1 is about $439.

Sponsors contributing more than $15,000: Alpro natural soyfoods, American Soybean Association, Protein Technologies International, Nebraska Soybean Board, Sojaxa (The French Association for Soyfoods Promotion–Active members: Alpro, Nutrition et Soja, Sojasun, Sojinal), U.S. Foreign Agricultural Service, United Soybean Board, Ohio Soybean Board, Central Soya, ADM, Wyeth Nutrition International, Indiana Soybean Development Council.

Other sponsors: Illinois Soybean Association and Illinois Soybean Program Operating Board, American Institute for Cancer Research, Monsanto Company, Ontario Soybean Growers' Marketing Board, Soyfoods Association of America, Minnesota Soybean Research and Promotion Council, Iowa Soybean Promotion Board, Michigan Soybean Promotion Committee, Indiana Soybean Development Council, Morinaga Nutritional Foods, Inc., and Functional Foods for Health Program. Address: Brussels, Belgium.

2369. Unicurd Food Co. (Pte.) Ltd. 1996. Removal notice (Postcard). Blk. 6020 Ang Mo Kio Industrial Park 3, #01-154/156/158/160, Singapore 2056. 4 p. [Chi; Eng]

• ***Summary:*** This 3½ by 6-inch 4-panel card, printed black and red on white, announces that Unicurd Food Co. will move its operations (offices and plant) to 18, Senoko South Road, Singapore 758089. Phone: (65) 759 2855. Fax: (65) 759-5411. A photo on the front of the card shows the front of the 2-story building. A map inside shows the new location. The old address was: Ang Mo Kio Industrial Park #3, Block 6020 No. 156, Singapore 2056.

Note: According to *Ontario Soybean Growers' Marketing Board Newsletter* (June 1996, p. 3). Unicurd now has the largest tofu plant in Singapore. The guest of honor at the grand opening was Noble Villenueve, Ontario Minister of Agriculture, Food & Rural Affairs. Address: Blk. 6020 Ang Mo Kio Industrial Park 3, #01-154/156/158/160, Singapore 2056. Phone: 482-5454.

2370. Eden Foods, Inc. 1996. Eden Foods protests USDA's proposed organic standards (News release). 701 Tecumseh Road, Clinton, MI 49236. 1 p. June 4. Accompanied by 4-page letter to Hon. Daniel Glickman.

• ***Summary:*** "Clinton, Michigan–Eden Foods has informed U.S. Secretary of Agriculture Dan Glickman of its objection to the fact that, as now proposed, the national standards for organically grown food under the Organic Foods Production Act of 1990 would bar Eden Foods, or any other company, from informing the public that it upholds higher standards for certified organic food than those proposed by the USDA. For over 25 years Eden Foods has worked closely with 180 family farms in developing standards for growing and processing organically grown food; for independents third-party inspection and certification; and for audit trail record keeping. The natural food consumer has come to expect this high level of protection and authenticity for organically grown food. These standards and practices are consistent with those in place in Europe, Canada, South America, Asia, Australia, Mexico, and India. These standards currently in force further the development of sustainable agriculture by providing incentive for improvement. The federally proposed organic standards remove incentive to improve and make federally mandated minimum standards the maximum by outlawing any communication in the U.S.A. about higher standards. Mr. Michael Potter, Chairman of Eden Foods, states, 'As proposed, the federal organic standards set back the organic food movement thirty years. They allow the use of food additives and processing aids heretofore never allowed. At the same time they make it illegal to communicate about our, or anyone else's, higher standards. The proposed federal standards would severely undermine this country's sustainable agriculture movement, and be the laughing stock of the international organic farming community.'"

Note: In the summer of 1970, Bill Bolduc of Eden Foods established Eden's first contact with an organic food grower–Bill Vreeland of Ypsilanti, Michigan, who grew organic wheat and soybeans. The two Bills drew up a contract and Bolduc soon made Eden's first direct purchase of organically grown wheat, which the company milled and sold. Soon Bolduc also purchased organically grown soybeans, corn, and rye from Vreeland. These crops, organically grown in Michigan, are shown in the Eden Foods Wholesale Pricelist of 26 July 1971, so they must have been grown during 1970. Address: Clinton, Michigan.

2371. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. 1996 Soybean Board research funding. June. p. 2.

• ***Summary:*** Total funding for 1996 will be $275,000. Soybean breeding is the primary focus of the research, however there are small projects on "Evaluation of Ontario soybean nutraceutical levels" ($5,000) and "Effect of soy protein on human protein metabolism" ($5,000). The research will be conducted by twelve organizations in Canada, with the largest amounts of money going to the University of Guelph and Ridgetown College. The public breeders at Harrow, Ridgetown, Guelph, and Ottawa are part of a coordinated team that addresses the needs of growers in Ontario's vastly different heat unit and soil zones. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2372. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. Crushers want U.S. system. June. p. 3.
• ***Summary:*** "When an Ontario farmer sells soybeans, the price paid is based on the assumption that the soybeans are Grade #2, with 2% foreign material, at 14% moisture. If the load that they deliver contains any dockage, the full weight of the dockage is deducted from the load.

"However, according to the samples tested by the Canadian Grain Commission, the majority of the soybeans sold by Ontario farmers would make Grade #1, and have a moisture content below 13%.

"Are Ontario farmers being paid a #2 Grade price for a #1 Grade product? Would farmers be better off, if Ontario's system of buying soybeans moved closer to the U.S. system, which is based on Grade #1 at 13% moisture, with an allowance of 1% foreign material and dockage? Those questions are facing the Ontario Soybean Growers' Marketing Board as they grapple with a request from the processors to change the pricing basis for soybeans in Ontario.

"The current system was established in the days when Ontario was a net importer of soybeans. Back then, most of the soybeans that were processed in Ontario came from the U.S., and U.S. exports are based on a Grade #2 at 14% moisture. Ontario has been self-sufficient in soybeans since 1985, and prices are now based on their value in export markets."

"The bottom-line question for the Board is: Can we find a way to change the soybean pricing basis to meet the needs of our customers, without taking money out of the farmer's pocket?" Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2373. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. Profiles: Maple Leaf Foods, and Maple Leaf Foods International. June. p. 7.
• ***Summary:*** Maple Leaf Foods (MLF) in a 60-year-old, $3 billion-a-year company, perhaps best known to consumers for its Maple Leaf processed meats. However MLF is also a "key buyer of Ontario soybeans, as well as a leading exporter of food-quality soybeans to East Asia, a market that the company pioneered in 1973.

"Maple Leaf Foods is currently evaluating the possibility of manufacturing soybean based products, with an eye toward one day exporting such products to Asia."

In April 1995 the company was acquired and came under aggressive new management. The new chairman is Wallace McCain, who is promising shareholders 5% per year growth in sales, and 11.5% returns on net assets.

"Maple Leaf Foods International is the corporation's international marketing arm, and is Canada's largest food exporter. It does $300 million a year in sales to Japan alone, largely through a network of over 100 partnerships with suppliers, manufacturers and distributors. Ted Bilyea, president of MLFI, says one of the keys to reaching Maple Leaf's export goal will be to make sure Ontario farmers can earn a healthy profit growing food-quality soybeans."

Bilyea adds: "We have always treated soybeans as food, not grain. It's a very important distinction."

"Garth Baxter, trading manager for MLFI's soybean team (whose photo is shown) says, 'In the future, premiums will have less to do with compensation for lower yield, and more to do with the food quality of the variety. We are moving toward a true quality premium.' It's good news for growers, Baxter says."

"Baxter says identity preserved soybeans already make up about 35% of their soybean exports in terms of volume."

"While Bilyea expects Maple Leaf to one day ship processed soyfoods to the Pacific Rim, he says the company also views food-quality soybeans as a value-added export."

"'We have invested very heavily in soybean breeding in the last few years,' Bilyea says. 'These varieties are in the system now, and they're going to be there for growers for years to come.'" Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2374. National Biodiesel Board. 1996. Board of directors and related documents. Jefferson City, Missouri. 15 p. Unpublished typescript. July 3.
• ***Summary:*** (1) The states represented are: Indiana, Iowa checkoff, Iowa association, Illinois checkoff, Missouri, Nebraska, Ohio, South Dakota, Michigan, Minnesota, SC/TN [South Carolina and Tennessee, combined as one], Wisconsin. For each state is given: One farmer representative and one staff rep. Staff (incl. Kenlon Johannes, executive director, and Jeffrey Horvath, Program director) and the executive committee are listed at the end.

(2) NSDB associate members: Cargill, TRT (Twin Rivers Technology), OSGMB (Ontario Soybean Growers' Marketing Board [Canada]), FPRF (Fats & Proteins Research Foundation, Inc.), NOPA / AGP (John Campbell), AEP (Ag Environmental Products, Doug Pickering), NOPEC.

(3) USB and the American Soybean Association staff. (4) Cooperators. (5) Potential members and other QSSB's.

(6) Consultants (7) Sub-contractors. (8) Agricultural and related organizations.

(9) Observers and advisors (government). (10) Observers and advisors (industry). (11) Observers and advisors (information & research services). Address: Jefferson City, Missouri.

2375. Kobold, Christy. 1996. How to get statistics on exports from and imports to the USA using PIERS (Port Import Export Reporting Service) (Interview). *SoyaScan Notes.* July 17. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** PIERS is a computerized database with detailed records on all import and export transactions through U.S. ports. It is produced by *The Journal of Commerce*, which started in San Francisco in 1827. The PIERS division started in 1972-73. They have 125 reporters at all U.S. ports (including Alaska, Hawaii, and Puerto Rico) who enter information into their database information from bills of lading and vessel manifests. Import data is now 100% electronic. Reports are produced on a weekly, monthly, or quarterly basis by port, by destination, product type, etc. There are five formats/media: Printed report (hard copy), tape, diskette, CD-ROM, and on-line access. One report costs $450. The 3 big ports on the west coast of the USA are Oakland and Long Beach (California), and Vancouver (BC, Canada); few imports come into San Francisco any more. The information available from PIERS is found in the following import and export data fields: Product description (as shown on bill of lading or manifest). PIERS product code. Harmonized Tariff Code and Description (assigned by PIERS, not copied from ship documents). Overseas country name. U.S. port name. Overseas port name. Container size, container quantity, TEU count and cubic feet. Steamship line and vessel name. Manifest number. Cargo quantity and unit of measure. Cargo weight. Voyage number. Shipment value. Payment type. Shipment direction. Bank name. Address: 425 California St., Suite 2450, San Francisco, CA 94104. Phone: 1-800-824-7537.

2376. Harrigan, Brian. 1996. Update on ProSoya in Russia. Current prices of equipment (Interview). *SoyaScan Notes.* July 29. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Russia has been ProSoya's single best source of income. To date ProSoya has sold 60-70 SC-20s, and one SC-100. By the end of August, ProSoya will also have sold eight SC-2000s (which produce 2,000 liters/hour of soymilk). Most of the latter large soymilk machines are being sold to a former dairy factory in Korenovsk, located about 35 miles northeast of Krasnodar in southern Russia, just northeast of the Black Sea. It was purchased by ASSOY–the Russian Soybean Association (Alexander Podobedov, director), which shut down the dairy operations completely and converted the plant to 100% soymilk production. Most of this soymilk is spray dried (powdered), and sold for half the price of dairy milk. ASSOY has conducted a very ingenious marketing effort on behalf of soymilk in southern Russia and is winning many converts.

The current prices (in U.S. dollars) of ProSoya's three basic types of soymilk equipment are as follows: SC-20–$6,900 (now made in India); SC-100–$65,000 to 100,000; lower prince models do not include boiler or chiller; SC-2000–$200,000 to $300,000. Address: Executive Vice President, ProSoya Inc., 5350 Canotek Road, #7, Gloucester, Ottawa, ONT, K1J 9C9, Canada. Phone: 613-745-9115.

2377. Harrigan, Brian. 1996. Actini, Actimonde, and the Agrolactor (Interview). *SoyaScan Notes.* July 29. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Actini is an active French company (located in eastern France on the southern shore of Lake Geneva) that makes the Agrolactor. The company president is Jean de Stoutz. ProSoya is now working closely with Jean de Voisin of Actimonde (the soy division of Actini), who has had a a great deal of experience for many years in Africa and Asia. He is a UHT and packaging specialist, who now lives in southern France and works as a consultant. Actini has sold about 100 of these machines, mostly in Third World countries, especially in Africa (to former French colonies). One puts dry soybeans (without soaking) into the machine and out comes formulated soymilk. The yield of soymilk is relatively low, with mostly suspended (rather than dissolved) solids since the soybeans are not soaked. The machine is very compact and can make about 200 liters/hour of soymilk using a continuous process. The base model (all you need to make soymilk) costs about $80,000 to $90,000. The yield from 1 kg of dry soybeans is 5½ to 6 liters of soymilk containing 7% dissolved solids. ProSoya's equivalent machine gets 7½ liters of soymilk, if you rewash the okara. Address: Executive Vice President, ProSoya Inc., 5350 Canotek Road, #7, Gloucester, Ottawa, ONT, K1J 9C9, Canada. Phone: 613-745-9115.

2378. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada).*1996. Canadian Soybean Export Association. 9(2):2-3. July.
• ***Summary:*** "The Canadian Soybean Export Association (CSEA), held their inaugural meeting on March 19, 1996." This article is basically the same as the news release issued by CSEA on March 19. A photo shows CSEA executives Kim Cooper, Sue Robert, Garth Baxter, and Ron MacDougall.

2379. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada).*1996. 1996 Canadian planting intentions. 9(2):1. July.
• ***Summary:*** Statistics Canada released their 1996 planting intentions report on June 28, based on surveys taken in late June. Soybean planting intentions for all of Canada are 2,192,800 ha, up 8% from last year. Of this, 10.4% (229,800 ha) will be planted in Quebec province, up 16% from last year. The remaining 89.6% (1,950,000 ha) will be planted in Ontario province, up 7% from last year.

2380. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada).*1996. Soybean seed coat discolouration. 1(2):2. July.

• ***Summary:*** Cool summers can cause the seed coat of certain soybean varieties to discolor, giving the seed a "dirty" appearance. Temperatures below 15ºC during seed development affect the expression of darker pigments in the seed coat. The greater the accumulated temperature below 15ºC, the darker the seed coat. Soybean seed coat color is influenced, in part, by the gene controlling soybean hair color. Soybeans with tawny hair color and yellow hilums tend to discolor in cool environments, while those with grey hair and yellow hilums discolor less. A graph shows this relationship.

2381. Cober, E.R.; Frégau-Reid, J.A.; Voldeng, H.D. 1996. Genotype and environment effects on natto quality traits. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 1(2):1-2. July.
• ***Summary:*** "Production of small-seeded natto soybean has increased in eastern Canada during the past decade. This study was conducted to evaluate natto cultivars and experimental lines for some quality characteristics... Two data sets, seven lines grown at five locations in Ontario and Quebec in 1989 and 1990, and fifteen lines grown at the same five locations in 1993 and 1994.

Table 1 contains 8 columns which show quality characteristics important in natto production, based on the means of data set 2: (1) Soybeans lines. The two named varieties are Canatto and Nattosan. Experimental varieties are EX-01 to EX-13. (2) Mean small-seed fraction is the mass of seed which passes through a 5.5 mm (#14) round-hole sieve compared to the mass of the complete sample. Values range from 630 gm/kg for Canatto to 990 gm/kg (i.e., more small seeds) for 5 experimental lines. (3) Percent hard seed is the percentage of seed which failed to imbibe water after soaking for 16 hours. Values range from 28.5 for Canatto to 0.0 for 10 experimental lines. (4) Water uptake is the mass of water absorbed, following soaking for 16 hours, compared to the mass of dry seed. Values range from 1,440 gm/kg for Canatto to 1,270 for EX-11. (5) Seed oil content. Values range from 145 gm/kg for Nattosan to 194 gm/kg for EX-02 and EX-03. (6) Seed sugar content. Values range from 98 gm/kg for Nattosan and two experimental varieties to 109 for three experimental varieties. (7) The aspect ratio is the ratio of minimum to maximum diameter. (7A) The hilum orientation is with the hilum up, in a plane parallel to the hilum. Values range from 0.74 for EX-13 to 0.82 for EX-04. (7B) The side orientation is with the hilum to the side, in a plane perpendicular to the hilum-up orientation and parallel to the long axis of the hilum. Values range from 0.86 for EX-08 to 0.93 for EX-04.

"Several natto quality characteristics have been improved. Natto lines have been developed that have a high fraction of small seeds with a very low level of seeds with impermeable seed coats. An increase in the level of seed sugar should be a future breeding objective." Address: Eastern Cereal and Oilseed Research Centre, Agriculture & Agri-Food Canada, Ottawa, Ontario, Canada K1A 0C6.

2382. Vitasoy International Holdings Ltd. 1996. Annual report 1995/96. New Territories, Hong Kong. 104 p. July. 30 cm. [Eng; Chi]
• ***Summary:*** For the fiscal year ended 31 March 1996, group turnover (sales) was HK$1,301 million, up 4% over the previous year. Of these sales, 70% came from Hong Kong, 19.6% from North America, and 10.5% from the rest of the world. Operating profit was down dramatically due to a big recall crisis which cost HK$79.9 million. Earnings per share were 6.0 cents, down 75%. Dividends for the year were 9.6 cents, the same as the previous year.

Chairman's statement: A crisis contained: Because of the "sour-taste" crisis, the Group decided to suspend temporarily operations at its plants in Hong Kong and China and to recall all Tetra Pak products from the markets in Hong Kong and Macau. These actions were in line with our policy of always putting our consumers' interests first" (p. 6).

"In North America, the Group continued the trend set in the first half and turnover grew by 10% for the year. The overall consumption of tofu has significantly increased due to newly published medical evidence–and public awareness–of the health benefits of soya protein and its effect on cholesterol reduction" (p. 7).

In the section on "Markets" (p. 8) is more detail on the North American market, where "the Group achieved sales of HK$25 million, representing an increase of 10% over the previous year. Despite unexpected sales shortfalls in beverage, the net operating profit of the Group in North America jumped 14%.

"Tofu products were the largest contributor, accounting for 40% of turnover. Tofu also realized the healthiest growth of over 17%. This was followed by beverages which made up about 39% of the region's total sales. Owing to order backlogs, sales were hardest hit in the Canadian traditional markets, resulting in reduced sales of almost 25%. The Hong Kong recall had little impact on the North American Vitasoy soyamilk sales in terms of consumer confidence.

"Secondary line products made up 11% of the region's turnover, representing a 16% increase. The dressings line comprised about 5% of total revenues, representing a 12% growth, while two new product lines under the Newmenu brand, Tofu Mate seasoning and Meat Analog, contributed an additional few percent to sales." Address: No. 1, Kin Wong Street, Tuen Mun, New Territories, Hong Kong. Phone: 466 0333.

2383. Gupta, Rajendra P.; Wood, Grant W. 1996. Energy efficient centrifugal grinder. *U.S. Patent* 5,544,821. Aug. 13. 8 p. Application filed 22 June 1995. 5 drawings. [1 ref]

Address: 1. 9 Veery Lane, Ottawa, ONT, K1J 8X4 Canada; 2. 836 Vinette Crescent, Orleans, ONT, K1E 1W9, Canada. Phone: 613-745-9115 or 613-744-4401.

2384. Hizer, Cynthia. 1996. The versatile vegetarian: Veggie hot dogs hit home run in taste league. *Atlanta Constitution (Georgia).* Aug. 29. p. H14. Food section.
• ***Summary:*** In March, the Vegetarian Society of Georgia held a "Feel Good Festival" with a series of tastings. Hot dogs were tasted "as is"–without adding ketchup, mustard, relish, or bun. Here are the winners, in descending order of preference (i.e., with the favorites listed first): 1. Yves Veggie Cuisine vegetarian frank. This wiener was also designated best veggie dog by *Self* magazine and the *San Francisco Chronicle* last year. 2. Yves Veggie Cuisine tofu frank. 3. Natural Touch vegetarian frank. 4. Light Life Wonder Dog. 5. Soy Boy Not Dogs. 6. Light Life Smart Dog (fat free). 7. Light Life Tofu Pups ("This has been the leader in sales for years and, in fact, was the first vegetarian hot dog to be served at Candlestick Park"). 8. Wholesome and Hearty Garden Dog (Made with wheat gluten, no soy). Address: Georgia.

2385. Gooderham, Melinda J.; Adlercreutz, H.; Ojala, S.T.; Wähälä, K.; Holub, B. 1996. A soy protein isolate rich in genistein and daidzein and its effects on plasma isoflavone concentrations, platelet aggregation, blood lipids and fatty acid composition of plasma phospholipid in normal men. *J. of Nutrition* 126(8):2000-06. Aug. [35 ref]
• ***Summary:*** The effects of consuming a soy protein isolate beverage (60 gm/day for 28 days) vs. a casein supplement was evaluated in 20 males. A dramatic rise in blood plasma isoflavone concentrations was observed in the soy protein group, the levels reaching 907 ± 245 nmol/liter for genistein (a 110-fold increase) and 498 ± 102 nmol/liter for daidzein (a 150-fold increase). These concentrations are higher than previously reported for the blood plasma of Japanese subjects consuming a traditional diet (276 and 107, respectively). It appears that this level of supplementation is not sufficient to counter heart disease risk factors such as high plasma cholesterol and platelet aggregation. Address: 1-2&5. Dep. of Human Biology and Nutritional Sciences, Univ. of Guelph, Guelph, Ontario, Canada N1G 2W1; 3. Dep. of Clinical Chemistry, Univ. of Helsinki, Meilahti Hospital, FIN-00290, Helsinki, Finland; 3. Dep. of Chem., FIN-00014, Univ. of Helsinki, Finland.

2386. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. Profile: Harcan Kingsoya Co. Ltd. Aug. p. 7.
• ***Summary:*** Harcan Kingsoya began operations Canada in 1991, in Scarborough. The company was formed by Bernard Leung, Michael Cheung, and a Chinese soyfoods manufacturer in the People's Republic of China. The company's first and main product is soya sauce. They also produce tofu, soymilk, and "dried soybean curd." In the future they also plan to produce "veggie-food" products such as burgers, sausage, and ham. Harcan products are marketed under the Veg-A-King and VAK brand names. The company's market was originally Europe, but now they are shipping to local supermarket chains and wholesalers in Ontario. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2387. *Ontario Soybean Growers' Marketing Board Newsletter.*1996. Soybean Board on the Web. Aug. p. 3.
• ***Summary:*** "Thanks to the Ontario Federation of Agriculture (OFA), the Soybean Board [Ontario Soybean Growers' Marketing Board] has a homepage on the Internet. The OFA received a grant to provide free homepages for up to 30 agricultural organizations for one year..." Included in the page are Board contact names/addresses and links to soy information sites. Visit the homepage at http://www. tdg.ca/ ontag/soybean/. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2388. Daller, Frank. 1996. Re: New developments at ProSoya Inc. Letter to William Shurtleff at Soyfoods Center, Sept. 16. 1 p. Typed, with signature on letterhead.
• ***Summary:*** Several months ago Frank resigned his position as president of ProSoya Inc. "During almost four years with the company, I had the pleasure of helping our team grow from a purely R&D operation, into a systems developer and manufacturer with over $3 Million in sales this year. Of particular personal satisfaction, was the introduction of the cottage industry size `SoyaCow' to humanitarian applications in developing countries, and the technology transfers to India and Russia which are providing for locally produced models at lower prices." Address: ProSoya Inc., 5350 Canotek Road, #7, Gloucester, ONT K1J 9C9, Canada. Phone: 613-745-9115.

2389. Skiff, James. 1996. Negotiations with ProSoya of Canada (Interview). *SoyaScan Notes.* Sept. 27. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Jim is working for a man named Howard Weiner (pronounced WEE-ner), who owns a company named Shared Ventures, which is a venture capital company that invests in food processing operations. Howard is now especially interested in soymilk and related products. Howard, whose family made their money originally (many years ago) by developing the dried egg business, is skilled at putting together new companies and joint ventures. Jim (often with Howard) has been negotiating all summer with ProSoya of Vancouver, BC, Canada, in the hope of starting a soymilk company in Minnesota using ProSoya technology. Jim and Howard (who flew to Vancouver twice) were hoping to get exclusive rights to use the ProSoya

technology in the USA, to establish an initial plant in Marshall, Minnesota, and then to develop regional plants round the USA. About 3 weeks ago Jim and Howard pulled out of the negotiations, very frustrated.

When Jim first talked with Lorne Broten in Vancouver, they discussed that ProSoya's contribution might be valued at $500,000 or a little more. They next time Jim talked with him, ProSoya's contribution was being valued at roughly $1 million. Then Jim and Howard went to Vancouver; they met Lorne, then were soon negotiating with Jerry Duncan of ProSoya; he is a newcomer to the company who is trying to put together business deals for ProSoya. He was apparently formerly in dairy sales and marketing for a company such as DairyFresh or some other company in that part of Canada; he is said to own part of ProSoya.

ProSoya has taken the position that they will not sell or license their equipment; they are only willing to participate as an equal partner in joint ventures. They offer to provide the soymilk equipment and know-how; the partner must provide the land, capital, personnel, and any additional equipment (as for packaging tofu). At the time Jim withdrew from the negotiations, he calculated that his side was expected to contribute about $3.5 million. The catch is that ProSoya retained the right to take back the equipment and withdraw from the joint venture at any time. Jim was frustrated at not being able to talk with Raj Gupta; he was told that Raj Gupta is no longer involved in the joint-ventures company but he has signed agreements whereby they control the company and equipment, and now he receives a royalty on the equipment he invented. The proposed joint venture would have paid a royalty to Gupta based on the production volume of the plant.

Jim has seen ProSoya's equipment operating in Vancouver several times and he thinks that he can improve a little on the equipment and a lot on the product. See comments on White Wave's Silk in a separate interview. In Vancouver, Jim tasted ProSoya's soymilk, yogurt, and tofu. He was very impressed with each of these products. The soymilk products made by ProSoya in Vancouver were very bland, with almost no beany taste. Address: Cornbelt Foods, Inc., P.O. Box 218, Marshall, Minnesota 56258. Phone: 507-537-1406.

2390. Skiff, James. 1996. Questions about White Wave's Silk soymilk (Interview). *SoyaScan Notes.* Sept. 27. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Jim is aware that Silk is made by ProSoya in Vancouver, BC, Canada, but then it is further processed and packaged somewhere in California. Jim is quite sure that additional ingredients are added in California, for two reasons. (1) He has read the ingredients listing on the label and it contains ingredients that he has been told by the manufacturer are not in the product when it leaves Vancouver. (2) He has tasted the product both here and in Vancouver. The taste is quite different. In addition, the product's taste within the USA is not consistent; each batch tastes different–sometimes quite different. Jim thinks that sweeteners, and perhaps other types of soymilk, are added in California. The product in California is much sweeter and (up until last week) more beany than it is in Vancouver. The Vancouver soymilk was very bland, with almost no beany taste. That was not true with the Silk sold in America. Address: Cornbelt Foods, Inc., P.O. Box 218, Marshall, Minnesota 56258. Phone: 507-537-1406.

2391. Archer Daniels Midland Co. 1996. Annual report. P.O. Box 1470, Decatur, IL 62525. 44 p. Sept.
• ***Summary:*** Net sales and other operating income for 1996 (year ended June 30) were $13,314 million, up 5.1% from 1995. Net earnings for 1996 were $695.9 million, down 12.6% from 1995. Shareholders' equity (net worth) is $6,145 million, up 5.0% from 1995. Net earnings per common share: $1.27, down 9.3% from 1995. Number of shareholders: 35,431.

On the cover of the report is color illustration of a stylized family farm. ADM now has a Web site at http://www.admworld.com. The American farmer is the most efficient and most productive in the world. "One American farmers feeds 212 people... In 1996, the U.S. will export $65 billion worth of agricultural products, approximately 10% of which are exported by ADM and its affiliates, helping to generate over $100 billion in economic activity and about one million jobs. The productivity of the farmer can help ensure world peace... Thanks to the 1996 farm bill, U.S. farmers will be able to respond to market conditions instead of government orders" (p. 4-5).

Soy protein is a fast growing are for ADM. Currently ADM is building plants in Decatur, Illinois, and Europoort, Netherlands, to make improved soy protein isolates. "Isoflavones are another exciting area. Isoflavones are trace components in plants (particularly soybeans) that are believed to have positive health effects. This is a promising new area, so this research group is seeing its share of exciting developments. Programs are in place to purify these components for future production" (p. 6).

"Natural-source vitamin E: ADM produces this antioxidant from soybeans and other oilseeds. Research shows that natural-source vitamin E is 36% more potent than synthetic vitamin E" (p. 6).

"ADM value-added products from soybeans: (1) Derived from soy protein: Concentrates, isolates, isoflavones, TVP*, flour/grits, soy milk, Harvest Burgers*, Harvest Burgers for Recipes*, NutriBev*; (2) Derived from soybean oil: Vitamin E, lecithin, distilled monoglycerides, mono- and diglycerides, sterols." * = Registered trademark (p. 7). Note: Each of these products is discussed in detail on pages 13-14.

"Isoflavones: Soybeans contain isoflavones, powerful phytochemicals that appear to be able to block the multiple processes that lead to cancer, heart disease, and other chronic degenerative diseases" (p. 12).

"Value-added products from soybeans:... Vegetarians have long been using soy as a protein source, but in light of the mounting evidence that soy foods have significant health benefits, Americans from all walks of life are trying to incorporate soy into their diets... Every day, ADM plants worldwide process over 2.6 million bushels of oilseeds, and with value-added soy products gaining in popularity in a number of industries, these products will continue to be in demand" (p. 13).

These soy products include: (1) "Distilled monoglycerides, derived from soybeans or other oilseeds, are used primarily as emulsifiers or as starch complexing agents in a variety of food applications. ADM monoglycerides are often used in baked goods, confections, extruded products and margarines to bring about or enhance desired characteristics" (p. 13).

(2) "Isoflavones: A relatively new area of interest is isoflavones (part of a group of substances called phytochemicals). The two predominant isoflavones found in soybeans are genistein and daidzein. Researchers at ADM and around the world are conducting studies that strongly suggest that isoflavones have significant health benefits. ADM is scaling up research and processing for the future production of this product" (p. 13).

(3) Lecithin: "Interest in lecithin has escalated worldwide due to recent research investigating its health benefits. Lecithin is most recently being touted as a nutraceutical, since the linoleic acid in lecithin is believed to possess health benefits. Expansions have been completed in both the Windsor (Ontario, Canada) and Europoort (Holland) facilities. Improvements are scheduled for the Hamburg, Germany plant and construction is progressing on the new deoiled lecithin plant in Decatur, Illinois. As the leading producer of lecithin, ADM is positioned to meet the world's growing demand."

(4) Natural-source vitamin E: "An antioxidant, vitamin E is reported to help protect cells from free radical damage, the type of damage that can lead to an array of degenerative diseases. A study in the *Lancet* [a prestigious British medical journal]... concluded that a dime's worth of natural-source vitamin E could reduce heart attacks by 75% when taken daily by those with bad hearts. The *New England Journal of Medicine* reported that postmenopausal women who ate a moderate amount of foods rich in vitamin E cut their chance of heart disease by almost two thirds." In order to keep up with the rising demand, ADM is increasing its natural-source vitamin E plant capacity by fifty percent. ADM is one of the world's largest producers of natural-source vitamin E and also processes products that are good sources of vitamin E, including corn, canola, soy, sunflower, and peanut oils... By 1997, we will have the capacity to supply 300 million people with the current recommended daily allowance of vitamin E."

(5) "Soy protein: One of ADM's most important and versatile value-added products is soy protein. With increasing evidence of health evidence associated with soy foods, an increasing demand for soy protein products seems likely. To meet this rising demand, ADM is expanding its soy concentrate and isolate plants in Decatur, Illinois, and Europoort, Holland... Soy protein is finding success abroad in the consumer marketplace. In Canada, soy frozen desserts are being sold at Safeway grocery stores under the Lucerne Dairy label. In the U.K., a new soy milk plant is under construction to met demand for a good tasting nutritious non-dairy beverage [probably made from isolated soy protein]. In Europe, VegeMince, VegeBites and VegeSteaks are being introduced by Haldane Foods, an ADM subsidiary. German consumers will be introduced to Frosta Medallions, soy protein and vegetable frozen patties available in four varieties." A large color photo shows a package of Green Giant Harvest Burgers for Recipes (p. 15).

"ADM European Overview: ADM owns the three largest tidewater oilseed plants in the world. They are located in Erith [on the River Thames just east of London], England; Rotterdam, Holland; and Hamburg, Germany."

Page 37 discusses "Antitrust investigation and related litigation." Address: Decatur, Illinois.

2392. Nutrisoya Inc. 1996. Classified ad: Bulk soymilk. *Bluebook Update (Bar Harbor, Maine)* 3(3):7. July/Sept.
• ***Summary:*** "Nutrisoya Inc. is Canada's leading soymilk and tofu manufacturer." In January 1996 the company launched its new line of aseptic packaged soymilk, "Nutrisoy Premium Lite." Recently they have upgraded their production facility and can now supply up to 3,000 liters/hour of organic soymilk. Contact Nick Feldman. Address: 4050 Pinard, St.-Hyacinthe, QUE J2S 8K4, Canada. Phone: 514-796-4261.

2393. James, Valerie. 1996. The implications of feeding soy: Facts about the "New Zealand situation". *Parrot (Parrot Society of New Zealand)* 2(4):34-40. Oct.
• ***Summary:*** A very detailed report on what happened to exotic parrots fed a formula containing soy and how the Jameses researched the causes of death. Contents: Editor's note. 1. Preliminary enquiries. 2. Suspect soy. 3. The case to be answered. 4. Presentation of evidence–How safe is soy. 5. In summing up. 6. My own verdict. 7. Footnote.

"1. Preliminary enquiries: In the lengthening days of early summer of '92 our dream of keeping and raising exotic and native birds, one which we had enjoyed for several years, became a nightmare when the chicks I raised on a commercial food began to sicken and die (although the

chicks I raised on my own formulation thrived). The symptoms were varied and unusual, but we did not suspect the food for several months because it was promoted as scientifically developed.

"The autopsies of our birds and those of others whose birds had been fed the same food, indicated an immune system breakdown with the resultant multiple organ failure and a lethal multiplication of the birds' own normally benign bacteria. Survivors often had poor muscle control, poor or unusual feathering or matured prematurely. Some were also aggressive or displayed inappropriate sexual behaviour.

"Because we were advised that the symptoms of haemorrhaging, vomiting, respiratory problems, liver disease, and immune suppression were likely to be caused by food contamination by either a rodent poison (warfarin type) or a fungal toxin (such as zearalenone) food samples were sent, by us and others, to several laboratories for analysis. The two New Zealand laboratories reported that, although in amounts varying greatly between samples, every food sample appeared to contain rat poison. We were all shocked!! But we were relieved to have an answer and so we put the manufacturer in touch with the New Zealand analytical chemists expecting that the remaining stocks would be withdrawn."

"Further analysis led to a report that the suspect food contained a structure which was almost identical to coumarin, upon which most modern rodent baits are based. Coumarin, although once allowed in small amounts, as an aromatic flavour enhancer in human foods, was long ago banned by the US Federal Food and Drug Administration when it was shown to be cumulatively toxic when fed to animals, causing them to die. In 1944 coumarin was synthesised into Warfarin, the first of the rodent poisons to cause death by reducing the body's ability to produce Vitamin K and consequently inducing fatal haemorrhaging. This lethal effect of coumarin was first discovered in the 1930s when the haemorrhagic death of many Canadian cattle being fed spoiled sweet clover silage was attributed to the naturally occurring coumarin in the food." Address: Whangarei Heads, New Zealand.

2394. Straus, Karen Cope. 1996. Let the eating begin: Readers from across the country and Canada tell us their picks for gold and silver in the olympics of vegetarian restaurants. *Vegetarian Times.* Oct. p. 62-72. [1 ref]
• ***Summary:*** On the first page are listed the "Winners by region," the top two vegetarian restaurants in each of 5 regions: West, Midwest, South, East, and North (Canada). On page 64 are listed favorite vegetarian restaurants in 21 states and Canada. The states with the most listings are California (17), New York (8), Pennsylvania (6), and Canada (5). Favorite recipes from various restaurants are given, including: Layered tofu supreme (Kung Food, San Diego). Jamaican-style curried tofu and mixed vegetables (Woodstock Vital Foods, Woodstock, New York). Tofu rancheros (Seva Restaurant, Ann Arbor, Michigan). Address: Food editor.

2395. Hill, Allan R. 1996. New continuous protein or tofu process and equipment developed in Canada (Interview). *SoyaScan Notes.* Nov. 25. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Highland Equipment Co. and Agri-Food Canada have a joint venture which has developed a process and equipment for making protein or tofu using a continuous process. Allan is the project coordinator. The basic steps in the process are as follows: Make liquid soymilk with a high protein content. Denature the soymilk protein by adding natural chemicals (not through heating) to precipitate the protein. Pasteurize using a high-temperature short time (HTST) heating process to lower the bacterial count with the required range. Run into a holding tube, so that it goes from a flow pattern into a laminar flow. Run into a coagulation tube system, where acid is injected into the flow after the product goes into a manifold; this changes it from a laminar to another type of flow, allowing the coagulant to mix in uniformly and completely. Run into a conveyance system and then into either of two packaging systems: (1) Pump bulk soymilk curds are through a standard augur hopper into 30 lb (5 gallon) plastic pails for food processing companies; (2) Run into an in-line static mixer to homogenize the product, then pump through an extrusion device (a stainless steel box) which forms it into cakes for retail sale. The process can make either regular or silken tofu.

The federal government of Canada holds the patents on the process and equipment, and the patent numbers are presently confidential. His company is part of the "Team Canada" group going to Seoul (Korea), Manila (Philippines), and Bangkok (Thailand) this coming January. He plans to talk with heads of soybean companies in Asia about licensing this process and technology. He thinks the equipment would be too expensive to ship overseas–even in 40-foot containers. It would be less expensive to have the equipment manufactured in the country of the licensee.

This process was largely developed at the Harrow Research Center in Ontario by Doug Jessop. It was developed originally for making continuous-process ricotta cheese.

The smallest commercial plant they sell will produce 2.6 million kg/year, working 8 hours/day and 5 days/week. This works out to be 1,250 kg/hour. They also have plants that make 2,500, 5,000, and 10,000 kg/hour. They will be able to deliver plants in the second quarter of 1977. They have built and tested one lab-scale plant that makes 250 liters/hour. Doug Jessop says that the finished product is definitely tofu.

Update: Talk with Margaret Vokes, Director-International. 1998. Jan. 5. Allan R. Hill is no longer with the company, whose name is now Highland Equipment Limited, 136 The East Mall, Toronto, Ontario M8Z 5V5, Canada. Phone: 416-236-9610. Fax: 9611. They have made and sold one system for ricotta cheese and are in negotiations with two tofu manufacturers. Address: JV Project Coordinator, Highland Equipment Co. Ltd., 645 Woodbine Ave., Toronto, ONT M4E 2J3 Canada. Phone: 416-698-0806.

2396. *ASA Today (St. Louis, Missouri).*1996. European response to genetically modified soybeans: Special update to ASA members. 3(1):3-4. Oct/Nov.
• ***Summary:*** Background: Discusses the acceptance of Roundup Ready soybeans, the "first commercially available variety of GMO soybeans," which have been approved for importation and processing by government regulatory agencies in the United States, Europe, Canada, Mexico, Argentina, and Japan. "Last spring regulatory approval was granted by the European Union allowing the importation and processing of Roundup Ready soybeans into food and feed."

"Present situation: Greenpeace and other activist groups have mounted strident opposition to the introduction of GMO soybeans into Europe."

2397. **Product Name:** Neilson's Soy Delight (Refrigerated in Gable-Top Carton).
**Manufacturer's Name:** Neilson Dairy. Div. of Weston Food Group.
**Manufacturer's Address:** Halton Hills, ONT, Canada. Phone: (905) 702-7200.
**Date of Introduction:** 1996. November.
**How Stored:** Refrigerated.
**New Product–Documentation:** Ontario Soybean Growers' Marketing Board Newsletter. 1997. Feb. p. 2. "Soy Delight soymilk." Neilson's Soy Delight is "the first fresh soymilk to be available in grocery stores." It comes in two flavors: Original and Vanilla. With its trilingual labeling (English, French, and Chinese) it is "targeted at the Asian-Canadian market, but it's a high-quality product that everyone will enjoy." One litre milk-style (gable-top) cartons are "currently being sold at Zehrs, Loblaws, Fortinos and Mr. Grocer supermarkets throughout Ontario."

Talk with Ian Walker. 1997. May 26. Neilson Dairy, a big Canadian dairy company, has a fresh soymilk on the market, sold in a gable-top carton like milk. They introduced it in about Nov. 1996. This is a new trend in Canada. Note: This soymilk is made by Nutrisoya, Inc. in Quebec and packaged near Quebec City.

2398. **Product Name:** ProSoya SoNice (Soymilk in Tetra Brik aseptic cartons) [Natural, Original, Vanilla, Chocolate].
**Manufacturer's Name:** Pacific ProSoya Foods Inc.
**Manufacturer's Address:** 312–19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: (604) 532-8030.
**Date of Introduction:** 1996. November.
**Wt/Vol., Packaging, Price:** 1 liter and 250 ml aseptic carton.
**How Stored:** Shelf stable; refrigerate after opening.
**New Product–Documentation:** Talk with Raj Gupta of ProSoya in Ottawa, Ontario, Canada. 1996. Dec. 16. This product was introduced in November 1995 (1996?) in three flavors: Natural (nothing added), original, and vanilla. A fourth flavor, chocolate, is now in test market. The product is presently sold only in Canada. The soymilk is made in two of ProSoya's plants–in British Columbia and in Ottawa, Ontario. The place where it is packaged is confidential. Note: It may be packaged at a Beatrice Foods plant near Toronto.

Talk with Fred Webster, head of International ProSoya Corp. office in New Hope, Pennsylvania. 1997. Sept. 31. This product, made in British Columbia, Canada, and packaged in New Jersey, will be introduced to the U.S. market in mid-October, 1997, in aseptic cartons (1 liter, and 250 ml x 3), in 6 flavors (vanilla, chocolate, natural {soybeans and water only}, original {sweetened, and balanced, with a balance of sodium and carbohydrate}, strawberry, and cappuccino); expected retail price is $1.99/liter.

Talk with Lorne Broten, President and CEO, International ProSoya Corp. 1997. Oct. 29. This product was launched in the late fall of 1996. It is now available in 1 liter and 250 ml UHT cartons. A new flavor (chocolate) has been introduced, and two new flavors (strawberry and cappuccino) will be available very soon.

2399. Clarke (Shearer), Maya. 1996. Re: Work with soyfoods for Plenty Canada in Sri Lanka and the Caribbean. Letter (fax) to William Shurtleff at Soyfoods Center, Dec. 1. 2 p.
• ***Summary:*** Her company is working with another company to develop a product that contains green vegetable soybeans. She is interested in starting a branch of the Soyfoods Center in Ontario. Maya worked for Plenty Canada for many years. She was part of the first team that went to Sri Lanka to conduct a feasibility study for CIDA; her title was Nutrition Consultant. Then she was field director at St. Lucia from 1985 until 1992. During that time (her name was Maya Shearer) she corresponded with Soyfoods Center. She also worked in Dominica, St. Vincent, Barbados, Haiti, Jamaica, and Guatemala on soyfoods projects. Her particular area of expertise is recipe development.

Plenty Canada's Caribbean projects were turned over to local management in 1992 and she returned to Canada; she

no longer works for Canada. She worked as a community worker and taught cooking workshops until last year when she and three other women started Sun & Sky Foods. She still acts as a resource person and teaches classes at the University of Western Ontario on tofu, beans, legumes, and vegetarian nutrition. She also works as a food consultant. Sun & Sky Foods produces a line of bean soup mixes an cornbreads which they currently sell throughout the province of Ontario. Address: Sun & Sky Foods, 859 Dundas St. E., London, ONT N5W 2Z8. Phone: 519-432-6916.

2400. *SoyaScan Notes.*1996. Chronology of major soy-related events and trends during 1996. Dec. 31. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Jan. 15–Silk, America's first soymilk sold refrigerated in a typical milk carton (gable-top, Pure-Pak) is introduced by White Wave of Boulder, Colorado. It is made in Canada, formulated in California, then shipped to White Wave in tanker trucks.

Sept.–Monsanto's Roundup Ready transgenic (genetically engineered) soybeans are harvested from an estimated 1.2 million acres of U.S. farmland. They begin to enter into the food supply–unlabeled. There is a great outcry in Europe (especially in England and Germany) by consumers over loss of freedom of choice concerning food–but hardly a peep from the USA.

1996 Sept. 15-18–The Second International Symposium on the Role of Soy in Preventing and Treating Chronic Disease, is held in Brussels, Belgium, and organized by Mark Messina, PhD.

1996 Oct. 30–Odwalla, a fresh juice manufacturer and distributor, is informed that their unpasteurized apple juice may be contaminated with an especially virulent strain of *E. coli* strain O157:H7 (pronounced Oh-157-H7). Odwalla immediately initiated a recall, but one baby died and 66 people in 3 states got sick. Three years earlier, in January 1993, a similar but more severe outbreak had occurred at Jack-in-the-Box in Seattle, Washington; 4 children died (from kidney failure) and 700 people became ill–from eating undercooked hamburgers. These two incidents may have major implications for the soyfoods industry–since unpasteurized tofu is a prime target for *E. coli* contamination. The first big consequence was seen when Kroger, a major supermarket chain in the Midwest, announced in late 1996, that it would no longer sell unpasteurized tofu.

There is growing interest in the health benefits of the phytochemicals in soybeans–especially genistein. Four areas of potential benefits have been identified, and they are in a "horse race" as scientists investigate more deeply: 1. Relief of risk of cardiovascular disease, especially heart disease. 2. Relief of menopausal symptoms. 3. Improvement of bone health and relief of risk of osteoporosis. 4. Relief of cancer risk of some sites–especially prostate cancer. But most media have tended to hype these health benefits, far beyond what the science justifies.

During the past year or two, Soyfoods Center has been receiving a growing number of calls from people who ask "How can I get more soy into my diet?" Never before have we heard people ask a question like this. These people have heard about the many health benefits of consuming soyfoods regularly but they don't know what foods would suit their tastes and diet.

This year, for the first time, the state soybean associations and boards take the lead (passing the Soyfoods Association of America) in promoting soyfoods in America. The leading states are Illinois, Indiana, Michigan, Minnesota, and Missouri.

This year (1996), the Chemopreventive Branch of the National Cancer Institute concluded that genistein (the primary isoflavone in soybeans) was one of four plant compounds with superior anticancer activity.

2401. *Bluebook Update (Bar Harbor, Maine).*1996. ProSoya receives new patent. 3(4):3. Oct/Dec.
• ***Summary:*** On 13 Aug. 1996 ProSoya Inc. of Ottawa, Ontario, Canada, was awarded a U.S. patent for their Energy Efficient Centrifugal Grinder. Invented by Raj P. Gupta and Grant W. Woods, it grinds solids or solids in liquids in multiple stages. For more information phone: 613-745-9115.

2402. Hayes, Keri. 1996. Biotech oilseeds yield first harvest. *Bluebook Update (Bar Harbor, Maine)* 3(4):1-2. Oct/Dec.
• ***Summary:*** An uncritical, unquestioning presentation of this most controversial subject. This spring U.S. farmers planted an estimated 1.2 million acres of Monsanto Company's Roundup Ready soybeans; 500,000 acres of Monsanto's Roundup Ready canola were planted in Canada. Dr. Molly Kiline, director of food industry relations at Monsanto, says its a simple weed control system.

2403. Boocock, David G.B.; Konar, S.K.; Mao, V.; Sidi, H. 1996. Fast phase-one oil-rich processes for the preparation of vegetable oil methyl esters. *Biomass and Bioenergy* 11(1):43-50. [123 ref]
• ***Summary:*** Describes a new process for rapid production of methyl esters using the addition of a cosolvent such as tetrahydrofuran (THF). There are now 25-30 plants making methyl esters (biodiesel) worldwide. Address: Dep. of Chemical Engineering and Applied Chemistry, Univ. of Toronto, 200 College St., Toronto, Ontario, Canada M5S 1A4.

2404. Main, Jan. 1996. The lactose-free family cookbook. Canada: Macmillan Canada. *

• ***Summary:*** This book combines information on lactose intolerance, dietary calcium, and a collection of recipes, including many dishes based on soyfoods. Address: Professional home economist, Scarborough, Ontario, Canada.

2405. *Oils & Fats International.*1996. Vegoil implants tested: Canada. 12(2):4.
• ***Summary:*** On Feb. 7, three Ontario women became the first in Canada to receive breast implants containing soy oil. The implants are made by Lipomatrix of Switzerland.

2406. Pioneer Hi-Bred International, Inc. 1996. Inventing and building seed crop genetic improvements: Research and product development. Des Moines, Iowa. 28 p. 28 cm.
• ***Summary:*** Includes: A message from Jim Miller, Vice President and Director, Oilseeds and Field Crop Research (p. 8). Soybean research (p. 9). World map of Pioneer research locations (p. 22-23). Soybean locations by region (p. 28): There are 13 in North America, 3 in South America (Venado Tuerto, Argentina; Santiago, Chile; San Jose, Costa Rica), and 2 in Europe (Parndorf, Austria; Parma, Italy). The Spanish-speaking North American soybean locations are: Salinas, Puerto Rico; Puerto Vallarta, Mexico. Those in the USA are: Kekaha, Kauai, Hawaii; Hamel, Illinois; LaSalle, Illinois; St. Joseph, Illinois; Cedar Falls, Iowa; Johnston, Iowa; Moorhead, Minnesota; Redwood Falls, Minnesota; Greenville, Mississippi; Napoleon, Ohio; Chatham, Ontario, Canada. Address: 11153 Aurora Ave., Des Moines, Iowa 50322-9969. Phone: 1-800-338-5878.

2407. Soya World Inc. 1996. So Good–Dairy free beverage: 5 easy to make, nutritious recipes. Product information guide (Leaflet). Vancouver, British Columbia, Canada. 12 panels. Front and back. 16 cm.
• ***Summary:*** This attractive full-color leaflet is folded into 16 panels. Contents: The story of So Good. Five recipes and color photos. The So Good family of soy beverages. Tips for using So Good. The ingredients in So Good: Filtered water, soy protein, vegetable oil, maltodextrin, rice extract, fructose, cane sugar, mineral salts (calcium phosphate, potassium phosphate), food acid (potassium citrate), flavours.

Why choose so good? (Nine reasons, incl. contains up to 9.3 gm of protein per 250 ml serving). Nutritional information for each of the five flavors: Original, Fat Free, Absolutely Vanilla, Utterly Chocolate, and Seriously Strawberry.

Note: This products are made by Soya World Inc. under license from the Sanitarium Health Food Company, New South Wales, Australia. Address: P.O. Box 3018, Vancouver, BC V6B 3X5, Canada. Phone: (604) 420-3240.

2408. Clarke, Maya. 1997. Re: Resume and summary of soyfoods work for Plenty Canada in Sri Lanka and the Caribbean. Letter (fax) to William Shurtleff at Soyfoods Center, Jan. 5. 10 p.
• ***Summary:*** The first 2 pages are a cover letter. The next 5 pages are an application for the International Soyfoods Center. The last 3 pages are a summary of Maya's work with soyfoods from 1984. In 1984 she was a team member in Sri Lanka, conducting a feasibility study, funded by CIDA (Canadian International Development Agency); at that time her name was Maya Shearer. From 1985 to 1993 she was in St. Lucia, West Indies, as field director of the Plenty Canada Integrated Soyfoods Program; here, at the Soy Center in Castries, she did her most extensive and creative work with soyfoods. She helped St. Lucians to start 10 small soyfoods businesses, including Union Hilltop Soyfoods (still in operation) and Natural Cafe. "The program in St. Lucia (population 150,000) was the most successful of Plenty's programs in the Caribbean... About 10 acres of soybeans were grown annually and all were used on the island for the production and human consumption of soyfoods."

In 1987 she was in Solola, Guatemala. In 1988 in Jamaica. From 1985 to 1990 in Dominica, she worked with Carib indigenous peoples to develop an appropriate soyfoods program. She also worked at the Soy Training Center in Roseau, Dominica, with Chuck Haren, Norman and Sarah Ayerst, and local Dominican counterparts. Although there was no formal soyfoods program on Barbados or St. Vincent, she conducted some training with women's and other community groups on these islands; their regional requests were serviced by the Soy Center in St. Lucia. In 1988 and 1989 in Haiti she met with people interested in establishing a soyfoods program. Address: Sun & Sky Foods, 859 Dundas St., London, Ontario N5W 2Z8. Phone: 1-888-441-6680.

2409. Clarke, Maya. 1997. Summary No. 2 of soyfoods work for Plenty Canada in Sri Lanka and the Caribbean (Interview). *SoyaScan Interviews on File.* Jan. 9. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Answers the following questions: Why did Plenty Canada discontinue its work with soyfoods in the Caribbean? Why is Plenty Canada in Ontario so much smaller now than 10 years ago? What is the former director, Larry McDermott doing now? Which of Plenty's Caribbean soyfoods programs have been the most successful? What does Maya think are the keys to a successful program. Address: Sun & Sky Foods, 859 Dundas St., London, Ontario N5W 2Z8. Phone: 1-888-441-6680.

2410. Thompson, Keith. 1997. History of breeding soybeans for use in making natto at Jacob Hartz Seed Co.

(Interview). *SoyaScan Notes.* Jan. 20. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Hartz got involved with natto and with food soybeans in 1975 when Yaichiro Mogi, founder and president of Asahi Shokuhin, a major Japanese natto manufacturer, contacted Continental Grain in Vancouver, BC, Canada. Bud Currie (phone: 604-684-7292) of Continental was there at the time and he knows the whole story in detail. Continental Grain then contacted Jacob Hartz Seed Co. in 1975 on behalf of Mr. Mogi. It was probably not until about 1979 or 1980 that Hartz's program to breed natto soybeans began to yield some results. The first natto soybean they bred successfully was their H-24. The small seeded soybeans they had before that shattered so badly (the seeds popped out of the pods before harvest) that after farmers grew it once, they refused to grow it again. Now Hartz has 6 natto varieties. Hartz was one of the first American seed companies to breed soybeans for food use. Hartz is still dealing with Mr. Mogi, as they did more than 20 years ago. He is buying more soybeans direct than anyone else in the business, because he does not go through all the multiple steps of purchasing (importer, then wholesaler) as is typical in Japan. In the early 1980s Hartz added a second customer for natto beans, as they started working with Mitsubishi. Today Mitsubishi and Continental sell natto soybeans bred by Hartz to other natto makers in Japan.

At a rather early date, Mr. Mogi decided that what made a soybean variety good for use in natto could be determined by scientific research. So, long ago, he established a research lab, and they started comparing soybean varieties, looking at several other characteristics (especially the chemical composition) in addition to seed size and hilum color. He communicated is research findings to Hartz, and they started screening based on the criteria that he desired. They started with small seed size and light hilum color, then tried to add more characteristics (such as high sucrose content) into the mix. Of course, Hartz would also like to get a high yield, but they have never been able to get good natto beans that yield well. So they end up sacrificing yield to get the other desired characteristics. "We think we've got the best natto breeding program in the world–by a long shot." Keith doesn't know of any other private company breeding natto soybeans and only a few universities (in Nebraska, Virginia, Minnesota, and South Dakota) are "tinkering around with natto beans." One major problem is that you must start with a very small germplasm pool–typically a southern pool because it is small seed size to begin with. There are some Midwestern and some Canadian natto varieties, yet at least 75% of all natto soybeans exported to Japan are grown in the South–by Hartz, James Dunn, and 2-3 others. Hartz is the largest supplier. Historically, Mr. Mogi has said that a particular soybean variety is good for making natto, many other natto makers start buying that variety. Once a natto manufacturer finds a variety he likes, he would prefer not to change it. Hartz has developed a natto variety that yields better, but Mr. Mogi has refused to accept it, so it probably will die. Hartz's competition (Asgrow, Pioneer, Northrup-King, smaller companies, etc.) are constantly trying to get better yield. The name of the game is to keep the desired natto characteristics but to constantly improve the yield.

Hartz sells two types of soybeans–food and commercial: 50% of its soybeans are sold to food manufactures and the remaining 50% (commercial) is sold to Southern farmers for planting and eventual use as oil and meal. The amount of soybeans sold for food use will continue to increase, but its percentage of the total will drop, because Hartz plans to rapidly expand its production of Monsanto's Roundup Ready soybeans, which are very profitable.

When Keith started in the soybean seed business in 1978, there were less than 10 soybean varieties in the southern United States–in 3 maturity groups. All of these were public varieties, bred at southern universities. Keith came to work for Hartz in 1983. Hartz introduced its first proprietary (private) commercial varieties (for planting by farmers) in 1984. The farmer is interested *only* in yield. Hartz is now looking to South America as an important new market. Address: Food and Export Manager, Hartz Seed, P.O. Box 946, Stuttgart, Arkansas 72160. Phone: 800-932-7333.

2411. **Product Name:** Sensational Soy (Soymilk) [Original, or Vanilla].
**Manufacturer's Name:** Beatrice.
**Manufacturer's Address:** 295 The West Mall, Suite 600, Toronto, ONT, M9C 4Z4 Canada. Phone: (416) 626-5500.
**Date of Introduction:** 1997. January.
**How Stored:** Refrigerated.
**New Product–Documentation:** Ontario Soybean Growers' Marketing Board (OSGMB). 1997. *Canadian Soyfoods Directory.* Chatham, Ontario, Canada: OSGMB. 27 p. See p. 15. Contact Greg Wild or Surendra Patel.

Talk with George Conquergood of International ProSoya Corporation (IPC). 1999. April 21. This soymilk was introduced in Jan. 1997 in a blue ½-gallon Pure-Pak carton. It was made for Beatrice by a small Chinese-Canadian soyfoods company named Pak Fok Food Products Inc., in Scarborough, Ontario. Owned by Simon Kwan, they make soymilk, tofu, and tofu products. Beatrice formulated, flavored, and packaged the soymilk at their plant at #6 Shastaberry Lane, Brampton, Ontario, and distributed and sold it across Canada in the dairy case of supermarkets. It was a Chinese-style soymilk with a fairly strong beany flavor. Beatrice started to package aseptic soymilk for IPC in 1996. The informally agreed to also package fresh soymilk in a gable-top carton for IPC–but they kept stalling.

Jerry Duncan failed to get a written agreement and a non-compete clause from Beatrice. This stalling forced IPC to have their fresh soymilk packaged by Farmland Dairies in New Jersey. Soon after IPC's fresh soymilk was launched, Beatrice came out with a competing product.

2412. Goh, Francis N.K. 1997. Unicurd Food Company Pte. Ltd. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada)* 11(2):1-2. July.
• ***Summary:*** Contains a good description and history of this tofu manufacturing company. A rather dark photo shows Mr. Francis Goh holding some of his company's tofu products. Address: Director and Founder.

2413. **Product Name:** ProSoya SoNice: Fresh Soy Beverage (in 1 Quart ESL Gable-Top Cartons) [Natural, Chocolate, Vanilla Lite].
**Manufacturer's Name:** ProSoya Foods Inc.
**Manufacturer's Address:** Surrey (Vancouver), BC, V3S BE7 Canada. Phone: (604) 532-8030.
**Date of Introduction:** 1997. January.
**Wt/Vol., Packaging, Price:** 1.89 liter ESL gable-top carton. Retails for $2.99.
**How Stored:** Refrigerated, 85 day shelf life.
**New Product–Documentation:** Talk with Fred Webster, head of International ProSoya Corp. office in New Hope, Pennsylvania. 1997. Sept. 31. This product, made in British Columbia, Canada, and packaged in New Jersey, will be introduced to the U.S. market in mid-October, 1997, in quarts and half gallons. Refrigerated (45 day shelf life); expected retail price is $0.99/cup.

Talk with Lorne Broten, President and CEO, International ProSoya Corp. 1997. Oct. 29. This product was launched in Canada in Jan. 1997. It is available in 1 liter and 2 liter gable-top ESL cartons.

Talk with Steve Demos, president of White Wave. 1998. Aug. 10. He heard about 10-14 days ago that the SoNice brand, both aseptic and gable top, is no longer being shipped to market. The company's first comment was "Packaging problems," and then it was "money problems."

2414. Carter, Thomas E., Jr. 1997. Public variety release summary: Table 1. Raleigh, North Carolina. 7 p. Unpublished manuscript. 35 cm. [43 ref]
• ***Summary:*** This table is titled "Pedigree and related information for North American varieties released during 1992 and Feb. 1997." For each variety the following information is given: Variety name. Maturity group. Year released. Pedigree. Prior designation. Developer. PI No. Reg. Lic. Reference. Note: The letters "AC" before a variety name stand for Agriculture Canada.

The varieties are: 9063, AC Albatros, AC Brant, AC Colibri, AC Cormoran, AC Harmony, AC Hercule, AC Pinson, AC Proteus, Accomac, Achiever, Agassiz, Alpha (1996), Alpha (1992), Athow, Benning, Bronson, Cache, Calhoun, Carver, CF461, CF492, Charleston, Chesapeake, Ciaric, Cisne, Colfax, Conrad 94, Council, Danatto, Defiance, Delsoy 5500, Dillon, Doles, Faribault, Fillmore, Flint, Freeborn, General, Glacier, Graham, Granite, Haskell, Hendricks, Holladay, Holt, IA1005, IA1006, IA2007R, IA2008R, IA2011, IA2012, IA2013, IA2016, IA2017, IA2018, IA2019, IA2020, IA2021, IA2022, IA2023, IA2024, IA2025, IA2027, IA2028, IA2029, IA2030, IA2032, IA2033, IA2034, IA2035, IA2036, IA3001, IA3002, IA3003, IA3004, IA3005, IA3006, IA3007, IA3008, IA4001 (Note: IA varieties are from Iowa), Iroquois, K5292, Kenwood 94, KS3494, KS4694, KS4895, Lambert, Lancaster, LN90-4524, Lyon, Macon, Magellan, Marcus 95, Maverick, Maxcy, Mercury, Micron, Mustang, Nemaha, ODell, Ohio FG1, Ohio FG2, Pace, Parker, Pearl, Piatt, Probst, Saline, Sandusky, Saturn, Stressland, Thorne, TNS, Toyopro, Traill, Vernal, Vertex, Wicomico, Yale. Address: Research Geneticist / Assoc. Prof., USDA-ARS, North Carolina State Univ., Raleigh, NC.

2415. Messina, Mark. 1997. Summary of findings: Heart disease. *Soy Connection (The) (Jefferson City, Missouri)* 5(1):3. Winter. Special edition: Highlights of the *Second International Symposium on the Role of Soy in Preventing and Treating Chronic Disease.* [4 ref]
• ***Summary:*** One obstacle to greater use of soy protein to lower blood cholesterol is the failure of scientists to understand the mechanism which causes this lowering–although there is no shortage of hypotheses. Dr. Cesare Sirtori, of the University of Milan, Italy, (a veteran researcher in this field and one of the keynote speakers) presented data showing that cholesterol reduction is due to enhanced LDL cholesterol degradation stimulated by peptides formed from the hydrolysis of the 7S globulin (a soy protein) by the liver. Dr. Shigeru Yamamoto and colleagues from the University of the Ryukyus in Japan, suggest it is the undigested peptides from soybean protein that lower cholesterol.

However, work by Ms. Mary Anthony and colleagues, from Bowman Gray Medical School in North Carolina, suggest that isoflavones, not protein, are the key. "Dr. Sirtori indicated that much of his clinical work demonstrating cholesterol reduction involved the feeding of soy products that contained minimal amounts of isoflavones, although his assertion met with some surprise."

"Elegant work presented by Dr. William Wong from the USDA's Agricultural Research Service (ARS) suggests that soy lowers cholesterol by enhancing cholesterol excretion through bile acid production, specifically via the chenodeoxycholic pathway.

"One of the most exciting findings of the symposium was the observation that soy increases HDL cholesterol. Relatively few dietary approaches have been shown to raise

HDL cholesterol. Three human studies, by Susan Potter and colleagues from the University of Illinois [USA], Dr. Elzbieta Kurowska and colleagues from the University of Western Ontario [Canada], and Drs. Karin Nilausen and Hans Minertz from the University of Copenhagen [Denmark], indicated that HDL increases in response to soy consumption. In some individuals the results are quite dramatic with HDL increasing as much as 50 percent, although typical increases are more in the range of 5-10 percent. It appears that the lower the initial starting HDL cholesterol level, the greater the response to soy. The combined effect of a decreased LDL and an increased HDL strongly support the use of soy for reducing heart disease risk." Address: PhD, Symposium Chairperson, Port Townsend, Washington.

2416. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Roundup Ready soys for '97. Feb. p. 2.
• ***Summary:*** One variety of Roundup-Ready soybeans is being offered in Canada by each of the following four companies: First Line, Pioneer Hi-Bred, and Cargill, and Novartis. A table shows the company name, variety name, CHU zone (2800-3400) and relative yield. "All these four transgenics are dark-hilum varieties. The first varieties of their type in Ontario, they yield slightly lower (3.1% to 5,8% lower) than their non-Roundup Ready competitors." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2417. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Soy Delight soymilk. Feb. p. 2.
• ***Summary:*** Neilson's Soy Delight is "the first fresh soymilk to be available in grocery stores." It comes in two flavors: Original and Vanilla. With its trilingual labeling (English, French, and Chinese) it is "targeted at the Asian-Canadian market, but it's a high-quality product that everyone will enjoy." One litre milk-style (gable-top) cartons are "currently being sold at Zehrs, Loblaws, Fortinos and Mr. Grocer supermarkets throughout Ontario." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2418. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Profile: Susan Iler. Feb. p. 7.
• ***Summary:*** "Iler (rhymes with "fire") joined the OSGMB's staff in 1992, after working two years with Dr. Wally Beversdorf at the University of Guelph's Department of Crop Science.

"She completed her Master of Science degree at Guelph part-time that year. Her training in crop biotechnology and weed science has come in handy, as well as her experiences from growing up on her family's cash crop farm in south Essex County.

"Over the past five years, the Soybean Board's research budget has increased from $146,500 to $272,500."

"The support for breeding and agronomic research continues, but an increasing number of projects are being added, including projects relying on biotechnologies. At Ottawa, as an example, OSGMB funds are directed toward finding biotech sources of white mould resistance. At Harrow, funds are directed toward the use of biotech techniques to select soybean varieties that are resistant to soybean cyst nematodes. Similar work at AAFC-Harrow and London [Ontario] targets *Phytophthora* root rot.

"Another recent addition, is a project being conducted at the Guelph Ag and Food Lab, looking at the levels of 'nutraceuticals' in soybeans. Compounds such as proteins, isoflavones and linoleic acid add value to soybeans. They have been linked to lower rates of both heart disease and several forms of cancer, as well as many other health benefits.

"One OSGMB-funded project at the University of Western Ontario's School of Medicine is examining how soy protein lowers bad forms of blood cholesterol.

"Iler's newest role is Vice Chair of Ontario Agri-Food Technologies, a non-profit organization incorporated on January 6, 1997 to ensure that Ontario becomes an international centre for agricultural biotechnology research and development."

Ontario has 22,000 soybean growers. A portrait photo shows Iler, with the caption: "Prioritization is key." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2419. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Licensed soybean dealers as of February 5, 1997. Feb. p. 6.
• ***Summary:*** Contains a list of 201 licensed Canadian soybean dealers, including the cities in which they are located. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2420. Walker, Ian. 1997. Research on soyfoods in Canada (Interview). *SoyaScan Notes.* March 25. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Ian and a colleague have been trying to visit every soyfoods manufacturer in Canada. At each location, they conduct an interview (which is confidential; Ian's colleague takes notes in shorthand; they do not use a tape recorder) and collect samples of products and their labels. Ian's office is now loaded with Canadian soyfoods products. All of this is being done under a contract, and will result in a directory of and a report on the Canadian soyfoods industry.

Update: 1997 July 11. The Canadian Soyfoods Directory is now nearing completion and will be launched in September. The plan is to print 1,000 copies, which will be sent to all organizations listed in the directory. The directory will not appear on the website http://www.soybean.on.ca. Address: College d'Alfred–Formation/

soya, C.P. 580, 31 St. Paul, Alfred, ON K0B 1A0, Canada. Phone: 613-679-2218 X-309.

2421. International ProSoya Corp. 1997. ProSoya SoNice: Manufacturer of superior soy food products (Portfolio / Presentation folder). Surrey (Vancouver), BC, Canada. Seven inserts. 30 cm.
• ***Summary:*** The full-color cover of this "presentation folder" shows a large white plate with a black rim on a natural beige tablecloth. In the center of the plate, in green and black letters, is written "ProSoya SoNice." Around the bottom and right side in smaller white letters is written "Manufacturer of superior soy food products." Four sprigs of parsley are scattered around the edge of the plate. In the upper right corner is a stem glass of soymilk, seen from the top.

Contains the following inserts: (1) Two ProSoya SoNice color brochures. One is for fresh soymilk products packaged in gable-top cartons, the other for shelf-stable products in aseptic packages. The front of each is similar, showing many different soymilk products in color packages. On the back of each are details about the products. The fresh soymilk is sold on four different flavors (natural, original, vanilla and chocolate), each quart or half-gallon gable-top cartons. The shelf-stable is sold in six different flavors (natural, original, vanilla, chocolate, strawberry, and cappuccino) in 1 litre aseptic cartons. (2) Sample recipes from five different color tear-off recipe pads: Banana pancakes. Potato soup with peppers. Lemon tahini dressing. So Nice fruit shakes. Dijon scalloped potatoes. (3) Color shelf dangler; on a 4-inch plastic square, SoNice is featured in a fresh gable-top carton. It is connected to a peel-off self-adhesive strip with a thin plastic strip. A "fridge sticker" with similar graphics, but larger, has a peel-off self-adhesive back and sticks onto a refrigerated case. (4) Two identical coupons: Save 35 cents on the purchase of any flavour of 1 liter So Nice soymilk. (4) Color leaflet from ProSoya Foods Incorporated titled "ProSoya SoNice: A natural choice!. Three panels, one side only. One panel contains product information, another recipes. Toll free number: (888) 2-SO-NICE. (5) George Conquergood's business from Pacific ProSoya Foods Inc. The oval SoyaCow logo appears in the upper right hand corner. (6) Letter to William Shurtleff at Soyfoods Center.

Talk with George Conquergood. 1999. May 29. This "presentation folder" was created either in late 1996 or early 1997; His best guess is March 1997. It was part of the SoNice presentations to potential buyers or investors. All agents and brokers had a supply of presentation folders and inserts. There was also one main insert on the health benefits of soy, and many more specific health-related inserts–to help salesmen explain "how good soy was for you." IPC had a huge library of information on the health benefits of soy that was printed on So-Nice letterheads, including excerpts from the writings of Mark Messina, Earl Mindell, etc. Dusty compiled much of this information together. Some of the inserts were developed in 1996 (the shelf-dangler was developed first), some in 1997, and some in 1998 (the recipe cards, in about 1998). ProSoya Foods Inc. was the company under which the various products were marketed. It had formerly been named Pacific ProSoya Foods Incorporated. Address: 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: (604) 532-8030.

2422. **Product Name:** Frozen Tofu (Soymilk Ice Cream) [Vanilla, Chocolate, Maple Walnut, Burgundy Cherry, Mocha Fudge, Amaretto], and Tartofu (Ball of Soymilk Chocolate-Hazelnut Ice Cream Covered with Cocoa Powder with a Sabayon Center).
**Manufacturer's Name:** Ital Gelati (Crème Glacée Ital Gelati Inc.).
**Manufacturer's Address:** 8390 Le Creusot., St-Léonard, QUE H1P 2A6, Canada. Phone: 514-322-0111.
**Date of Introduction:** 1997. March.
**How Stored:** Frozen.
**New Product–Documentation:** Portfolio with four inserts (each 4 inches wide but different heights on glossy paper) sent by Bob and Pattie Gerner from Fancy Food Convention in San Francisco. 1997. March. Ital Gelati has been in operation since 1983, when Domenic Arcuri acquired the secret of gelato production from Italy, where his parents were born. One insert, titled "Frozen Tofu," states: "Finally an ice cream without the guilt! Non-dairy, low fat and naturally flavoured with real fruit, Ital Gelati's new tofu ice cream creates a whole new category of frozen treat. Available Kosher Pareve, in 7.7 liter tubs (1.5 US gallons) and 1 liter containers." The six flavors are listed.

Another insert, titled "Tartofu," shows a photograph of a chocolate ball with a white center. This product was "Inspired by the classic of Tortufo" (an Italian word for a ball of ice cream with another flavor inside). "Tartofu is a light delight (less than 10% fat), frozen tofu 'ice cream' sabayon center, enrobed in rich chocolate-hazelnut and covered with cocoa powder." It is Kosher Pareve and dairy free. The company logo is a round photo of the Mona Lisa with the words "La Bella Italiana" around it on a black background.

2423. Jones, Peter J.H.; MacDougall, D.E.; Ntanios, F.; Vanstone, C.A. 1997. Dietary phytosterols as cholesterol-lowering agents in humans. *Canadian J. of Physiology and Pharmacology* 75(3):217-27. March. [40 ref]
Address: School of Dietetics and Human Nutrition, McGill Univ., Montréal, QC H9X 3V9, Canada.

2424. **Product Name:** 2 Garden Vegetable Patties (Fat Free).

**Manufacturer's Name:** Yves Fine Foods, Inc. A subsidiary of Yves Veggie Cuisine, Inc.
**Manufacturer's Address:** 1138 East Georgia Street, Vancouver, BC, V6A 2A8, Canada. Phone: 604-251-1345.
**Date of Introduction:** 1997. March.
**Ingredients:** Water, vegetables (onions, carrots, peas, corn, green beans, red pepper, squash, water chestnuts), organic brown rice, organic rye, textured soy protein, tomato paste, mustard, brown rice syrup solids, yeast extract, wheat gluten, soy protein isolate, sesame seeds, pea fibre, onion powder, garlic powder, paprika, carrageenan, gum arabic, salt, spices, natural flavor, citric acid.
**Wt/Vol., Packaging, Price:** 6.0 oz (170 gm). Retails for $2.19 (1997/04, Lafayette, California).
**How Stored:** Refrigerated or frozen.
**New Product–Documentation:** Product with Label purchased at Safeway (Lafayette, California). 1997. April 27. Red, yellow, and black on white. "Fat free. No preservatives." A color photo on the front panel shows one pattie atop other vegetables on a plate. The side panel states: "100% vegetable protein. Cholesterol-free. Great taste (kids love them). Products are pre-cooked."

Product with new Label purchased at Safeway (Lafayette, California). 1998. Feb. 8. Product name: Garden Vegetable Patties. Grayish-green, red, and black on white. A different color photo on the front panel shows a bun covering the lower right corner of one patty, with a cherry tomato and lettuce in the upper right. "All natural. Fat free. Cholesterol free. 100% vegetable protein. Preservative free. Contains no meat." 2 patties weigh 6 oz (170 gm). Price: $2.19. Ingredients: Water, vegetables (onions, carrots, peas, corn, green beans, red peppers), textured soy protein, rye flakes, wheat gluten, brown rice, tomato paste, dijon mustard, vegetable gum, yeast extract, pea fiber, evaporated can juice, onion powder, salt, carrageenan, paprika, spices, garlic powder, citric acid.

2425. Vance, Sherry. 1997. The collection of early American seed catalogs at the Liberty H. Bailey Hortorium at Cornell University (Interview). *SoyaScan Notes*. April 1. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Sherry is the expert on the seed catalog collection in the Bailey Hortorium. The Hortorium is located in the Mann Library but is not officially affiliated with it–though there is much cooperation. The collection has never been catalogued, nor has an archival collection record ever been created. Thus, no complete written record exists of what companies and seedsmen are in the collection, or what years there are. However Miss Bailey's cards from 1932 on are a partial listing. L.H. Bailey came to Cornell in 1888 and started collecting at about that time. He collected some catalogs from before that date, but most of his old catalog collection is from the 1890s and early 20th century. The collection is stored in file boxes, alphabetically by whichever name was more prominent, the owner name or the company name. So it is just a matter of finding the company in the alphabet, pulling out the box, and seeing what years are owned for that company. Dr. Bailey also acquired a large number of botanic garden seed lists from outside the United States. Both the nursery or seed catalogs and botanic garden lists (usually filed by country) are stored in these boxes.

For many years, Dr. Bailey's daughter, Ethel Zoe Bailey, maintained this collection–in addition to several other things she did within the department. She was the curator for the specimens, the librarian, and the editor for most of his books. By 1932 Dr. Bailey had been able to convince nurserymen and botanic garden people to send him, on a regular basis, year after year, copies of their catalogs, seed lists, and inventories. Starting in 1932, as each arrived, Miss Bailey started to keep an index card system of each plant that was offered, and a code as to what firms offered it. In addition, she was the librarian, the curator of the herbarium (taking care of the specimens), editor of her father's books and his traveling companion, etc. She was a truly selfless person, and had no interest in taking credit for all she accomplished, and did not even want to have her picture taken. One of the few things she was very proud of was the fact that in 1912 she became the first woman in Ithaca to receive a driver's license (known then as a "chauffeur's license").

Miss Bailey officially retired in 1957, but for the next 26 years she came to the Hortorium each weekday and worked as a volunteer to maintain the system she had started until about 3 months before she died in July 1983–at age 93. Sherry knew Miss Bailey for almost 4 years and found her to be an extremely interesting and dedicated woman. "It is amazing the amount of indexing and recording work that Miss Bailey did by hand–before the age of computers." Using Miss Bailey's system, one can easily determine when (after 1931) each major nursery, seed catalog, or botanic garden first offered the soybean and how often. Likewise, looking at the card for one species, one can easily tell the relative popularity of that plant, depending on how many firms were listed on the card. She did not include any catalogs or lists published before 1932. The purpose of this index (including Miss Bailey's complex system of various colored dots and checks after each entry) was to find out which plants were being offered in which catalogs and seed lists and how often.

Miss Bailey created a second index system which gives the full name and address of each organization (seed company or botanic garden) that appears in the first index system. This second index system consists of three sets of cards in files: (1) The cards for active U.S. and Canadian organizations (as of 1983). (2) The cards for inactive U.S. and Canadian organizations (as of 1983; called "the dead file"). (3) The cards for foreign organizations. Most of these

cards were handwritten by Miss Bailey–and some are hard to read, especially those written when she was in her later years. Sherry is planning to enter the contents of these cards (starting with the foreign ones) into a computerized database, so she can more easily search and disseminate this valuable information. [Note: This database was completed on 1 Oct. 1997.] Each of the catalogs and seed lists that appear in the index is still owned by the Bailey Hortorium. Dr. L.H. Bailey used this information in his research and writings until his death in 1954. Sherry will look for the soybean in this index system.

The international seed list exchange worked like this. Once a year botanic gardens published a list (usually in the form of a saddle-stitched catalog, from 6 to 40 pages in length) of what seeds they had and were willing to trade. The scientific (Latin) name of each plant was given, often together with its common name in one or more languages (such as English and French). Such a seed list was often called an *Index Seminum.* Plants were arranged by families and each plant was numbered sequentially. In each seed list was a sort of "order form" usually titled *Desiderata* ("things you desire"). Any researcher whose organization participated in the system could order one packet each of up to ten different seed species.

Sherry's sense is that the National Agricultural Library (NAL) in Beltsville, Maryland, has the largest collection of seed catalogs in America; contact Judith Ho, the librarian there. NAL's collection is more along agricultural lines whereas Bailey was collecting more catalogs on vegetable garden and flower seeds. She would estimate that NAL owns about 180,000 catalogs compared to about 131,000 at Cornell. Sherry was not aware of the collection at the Smithsonian Institution. Address: Research Aide, L.H. Bailey Hortorium, 462 Mann Library, Cornell Univ., Ithaca, New York 14853-4301. Phone: 607-255-7981. Fax: 607-255-7979.

2426. McDermott, Ron. 1997. Thoughts on the use and labeling of genetically engineered soybeans in Worthington's food products (Interview). *SoyaScan Notes.* April 25. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Worthington Foods is still working to establish a policy on this subject. The company had to start dealing with this issue in a big way in July 1996, before the U.S. soybean harvest, when British Retailer's Association (BRA) sent a letter to all of their suppliers, including Worthington, alerting all food manufacturers that genetically modified (GM) Roundup Ready soybeans would become part of the U.S. soybean crop in the fall of 1996, and asking them to please contact their suppliers immediately to request only non genetically modified soybeans. The issue for the BRA was not the safety of the soybeans but the consumer's freedom of choice and labeling. Therefore the BRA wanted to avoid having to sell GM soybeans. The UK is Worthington's largest export market, so the company must take the concerns of British consumers very seriously. Ron understands that concerns over GM foods in Germany are even greater than in the UK.

The BRA sent out a second letter to suppliers in about Sept. 1996, before the U.S. soybean harvest, which basically said that they had come to realize that segregation of non-GM foods was not possible at this time.

The first major problem for Worthington is that they buy most of their soybeans in the form of defatted soybean meal–not whole soybeans. Currently it would almost impossible to find a soybean crusher willing to segregate non-GM soybeans. However in thinking through this with Ron, Shurtleff realizes that within the next year or two, some of the small soybean crushers will probably start to crush non-GM soybeans is order to create a new niche market and a competitive advantage over the big crushers. Worthington would then have a good source–if it wanted one.

A second issue is labeling. Worthington has three different labels for many of its best-selling products. One for the USA market, one for Canada (which must be bilingual, in English and French), and one for the UK–since each has different labeling requirements.

A third issue is the U.S. natural foods market–which has shown that it will probably not sell GM food products. Worthington makes its okara patties from whole soybeans and sometimes buys organic soybeans. No one knows whether or not GMO products will be able to obtain kosher certification.

Note: What are the big issues? They probably have little to do with science. At present there are no benefits to consumers from GM soybeans, and consumers feel a fair amount of uncertainty about genetically engineered foods. If there were some big benefits (such as higher levels of genistein), the decision might be more difficult for consumers. The real issue is freedom of choice. Since 1906 the U.S. Pure Food and Drug Act has required that all ingredients in food products appear on the label so that consumers can decide what to eat. It is unlikely that such a basic, long-standing principle will be changed.

Ron believes that consumers will eventually decide this question. But as a scientist, he has been trying to follow this debate, and listen to both sides. It is unfortunate, he thinks, that the very first application of genetic engineering to soybeans is related to soybean production (weed management through Roundup herbicide) rather than, say, improved nutrition. How many consumers are interested in consuming Roundup Ready soybeans? Ron has heard that Roundup is better for the environment than most other herbicides, and that much less is required to do the job. It could take pesticide application from tons per acre to grams per acre. People who are really concerned about the

environment will probably buy organically grown foods. At Anaheim this year, one group speaking out against GMO foods was named "Mothers for Natural Law." Their position is "don't fool with Mother Nature." Ron thinks that Monsanto has done a poor job at educating the public–perhaps because most of the benefits accrue to farmers; they seem to think that this whole issue will soon go away.

To date, Worthington has not had a great deal of consumer concern in the form of letters or phone calls about GM soybeans. In the USA it seems to be more of an activist issue than a consumer issue. Ron has heard that Tivall is having a terrible time on this question, because a large percentage of their products is sold in the UK and continental Europe. Ron does not know whether or not a GMO product can be certified kosher.

Most of the Natural Touch products are NOT from whole soybeans; only the okara pattie is. Address: Vice President Research & Technology, Worthington Foods, 900 Proprietors Rd., Worthington, Ohio 43085-3194. Phone: 614-885-9511.

2427. *Might (Canada).*1997. Tracking Dead fans through the world without Jerry: Things to do in Telluride when Jerry's Dead. No. 15. March/April. Music section.
• ***Summary:*** This article is written for fans of the rock group Grateful Dead, whose famous and beloved guitar player Jerry Garcia died on 9 Aug. 1995. "Things to do in a parking lot, any parking lot... Eat tempeh burgers... Eat veggie burritos."

2428. Noble Bean. 1997. Tempeh–Noble Bean (Leaflet). McDonalds Corners, Ontario, Canada. 2 p. Front and back. 28 cm.
• ***Summary:*** The top three-fourths of the front of this black-on-tan leaflet shows six tempeh products (packages and labels) made by Noble Bean. On the bottom quarter is a brief description (left column in French, right in English) of tempeh. On the back is a very brief description (in French and English) of Noble Bean and its history since 1979, an illustration of the countryside production facility (in a trailer), and a recipe for tempeh teriyaki. Address: RR#1, McDonalds Corners, ONT, Canada K0G 1M0. Phone: 613-278-0173.

2429. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Cuts to agricultural programs must stop. April. p. 1.
• ***Summary:*** "Soybean growers from across Ontario are calling on the Ontario government to stop further cuts to agricultural programs delivered by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)." A graph compares the Government of Ontario and OMAFRA expenditure (in $ millions) from 1985 to 1995: The government of Ontario's expenditures grew by approximately 67% from $30,000 million [$30 billion] in 1985 to a peak of $52,000 million 1994, then started to drop in 1995. OMAFRA's grew by about 40% from 300 million 1985 to a peak of $430 million in 1990, then had fallen by 47% by 1996 to below the level for 1985 at $250 million. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2430. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. OMAFRA cost recovery. April. p. 4.
• ***Summary:*** "As of April 1, OMAFRA is charging fees for a wide range of its information products, including publications, videos, software, courses, soil maps, and drainage documents. Crop variety trial brochures and OMAFRA fact sheets will remain free of charge.

"Through cost recovery in the 1997/98 fiscal year, OMAFRA hopes to funnel $1 million back into its budget." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2431. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Food labelling & biotechnology. April. p. 5.
• ***Summary:*** "As the products of biotechnology enter Canada's food marketplace, some consumer and special interest groups have called for mandatory labelling of biotech products or the processed foods that have these as ingredients (i.e. 'novel foods')."

The Canadian government has decided: "Unless these foods are significantly different in their composition or nutritional quality or they contain potential allergens, labelling would not be required. Voluntary labelling would be accepted."

Mandatory labelling of all products of biotechnology would be very expensive for Canada's food processors. "Even if very detailed label information is given, a label of, for example, 'may contain soybeans with a glyphosphate-resistance gene', would not provide consumers with useful information."

The needs of consumers who are opposed to biotechnology "could be met through negative labelling (i.e. 'This product is non-transgenic'). This would parallel other niche-market products..." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2432. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Biotech & transgenics. April. p. 6.
• ***Summary:*** Dr. Peggy Lemaux of the University of California at Berkeley explained that "transgenic plants are plants that contain DNA (genetic code) from a different organism (plant, animal or microbe), but the amount of 'foreign' DNA is minute. For example, if a transgenic plants' genetic code is visualized as a stack of 1,700 books (the height of a 20-storey building), the 'foreign' DNA that it contains could be considered equal to just ½ page in the stack (1.7 million pages).

"By contrast, classical breeding methods, where one plant is crossed with another, results in changes to one-half of the books in the stack." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2433. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Soy and osteoporosis. April. p. 6.
• ***Summary:*** Describes a new cookbook called *Bone Vivant* put out by the Osteoporosis Society of Canada: "Although many such cookbooks focus on dairy foods, this book features alternative calcium sources. Because soybeans are a source of calcium, one quarter of *Bone Vivant* recipes include soyfoods. Whole soybeans, tofu and soy flour can all be part of a bone-building diet." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2434. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Soyfoods center opens. April. p. 6.
• ***Summary:*** "For people interested in information on soyfoods, there is now a *Soyfoods Center* in London, Ontario," directed by Maya Clarke. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2435. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Roundup Ready soys. April. p. 2.
• ***Summary:*** "The following chart is a corrected version of the one printed in our February 1997 newsletter. Please note the corrected yield for the Novartis variety and the corrected CHU zone for the Pioneer variety." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2436. Walker, Ian. 1997. Soymilk and soybean crushing in Canada (Interview). *SoyaScan Notes.* May 26. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** It is quite the fashion now for big dairy companies (such as Neilson) to be selling soymilk under their own private labels. It is widely available in Canadian supermarkets–much more so than in U.S. supermarkets.

There are only two major soybean crushers left in Canada: ADM Agri-Industries Ltd. (Windsor, Ontario) and CanAmera Foods. But there are also about 4 "micro-crushers" who make "cold pressed" [mechanically pressed] soybean oil, and low-fat meal (which they sell to ADM). Address: College d'Alfred–Formation/soya, C.P. 580, 31 St. Paul, Alfred, ON K0B 1A0, Canada. Phone: 613-679-2218 X-309.

2437. Osho, Sidi M. 1997. Curriculum vitae. Ibadan, Nigeria. 10 p. Unpublished typescript.
• ***Summary:*** Contents: Research goals. Educational background. Experience and interest. Scholarships, fellowships, distinctions and awards. Work experience. Membership of professional societies. Conferences attended and papers presented (64 conferences and papers from Dec. 1983 to Jan. 1996. Note: The conference papers which were published are cited again in the "publications" section). Publications (42–from MSc thesis in 1982, to 1996; roughly have of these are conference papers). Professional accomplishments. Names and addresses of referees.

Educational background: Associate Degree in Agriculture, Delta College, University Center, Michigan (April 1977 to April 1979). BSc in Food Science, Michigan State Univ., College of Agriculture (April 1979 to June 1981). MSc in Food Processing and Technology, Ohio State Univ., College of Agriculture (Dec. 1981 to Sept. 1982; Thesis on processing plantain chips). PhD in Food Processing and Technology, University of Ibadan, Nigeria (Sept. 1983 to Jan. 1993; Thesis on processing and preservation of plantain).

Scholarships, fellowships, distinctions and awards: (1) Fellowship award on post-harvest plantain research, Ford Foundation and West African Regional Corporation on Plantain (WARCOP; 1985-1987). (2) INTSOY–University of Illinois, Urbana-Champaign. Training course award on soybean processing and utilization. (3) ASA–American Soybean Association award of recognition for carrying out activities to increase the use of soybeans and soybean products (1989). (4) International Development Research Centre (IDRC, Ottawa, Ontario, Canada) award for Best Research Scientist–For execution of research goals on the 25th anniversary of IDRC (See IDRC for Jan. 1995). (5) TOYP award 1996 (Top Outstanding Young Persons of the World), Junior Chamber International, USA. (6) Chairman of the Continuing Committee on the Third International Soybean Processing and Utilization Conference (ISPUC III), Japan, January 1996. Note: The first two such conferences were held in China and Thailand. Address: Food Technologist and Coordinator, Soybean Utilization Project, International Inst. of Tropical Agriculture (IITA), Oyo Road, PMB 5320, Ibadan, Nigeria. Phone: 234-2-241-3993.

2438. Kikkoman Corporation. 1997. Annual report 1996. 339 Noda, Noda-shi, Chiba 278, Japan. 24 p. 28 cm. [Eng]
• ***Summary:*** The information in this English-language annual report is current as of April 1997. Contents: Financial highlights. Profile. A message from the president: The year in review, an emphasis on growth, principal management issues, looking ahead. Overseas operations–A world brand: The Americas, Europe, Asia and Oceania. Financial section. Corporate history. Global network (directory of Kikkoman names, addresses, and phone numbers worldwide). Board of directors and officers. Corporate data.

During fiscal 1996, ended 31 December 1996, consolidated net sales worldwide rose 1.3% over the previous fiscal year to 206.0 billion yen, down from a peak of 211.7 billion yen in 1992. Net income surged 63.8% to a

record 7.3 billion yen, up from 4.4 billion yen in 1995. In 1993 net income was 4.7 billion, in 1992 it was 4.9 billion, and in 1991 it was 6.2 billion–very volatile.

Overseas sales jumped 21.8% in 1996 to 54.4 billion yen, and accounted for 26.4% of consolidated net sales, up 4.4 percentage points from fiscal 1995. "Although the declining value of the yen helped boost overseas sales, this impressive result mainly reflects the excellent performance of the company's subsidiaries in the United States." In Japan, difficult conditions resulted in a 4.4% decrease in sales.

During the past year: Kikkoman increased efforts to boost sales of its premium-quality *Marudaizu* Soy Sauce (made from whole soybeans rather than defatted soybean meal). July 1996–Kikkoman starts construction of its first soy sauce manufacturing plant in Europe, located in the city of Hoogezand-Sappemeer, in the northern Netherlands. Aug. 1996–Relocated its Tokyo Head Office to Nishi-Shinbashi in central Tokyo, in a move to expand the role of this office–and introduced E-mail. Feb. 1997 began constructing its second U.S. soy sauce manufacturing plant in Folsom, California, on a 52-acre site; the ground-breaking ceremony took place in March 1997. Feb. 1997–Launched a new *Yakiniku no Tare* (Steak Dipping Sauce) in *Akadare* (Red Label) and *Kurodare* (Black Label) flavors.

"The Americas." Kikkoman's new plant in Folsom, California, is scheduled to come on stream in autumn 1998 with an initial production capacity of 10,000 kiloliters per year (about 2.64 million gallons per year). The plant will be operated by Kikkoman Foods, Inc., the company's wholly-owned Wisconsin-based subsidiary, and approximately 25 local employees will be hired. The plant will supply Kikkoman *Koikuchi Shoyu* (regular soy sauce) to customers in the western United States and Canada. Kikkoman's first shoyu plant outside Japan began operation in Wisconsin in 1973. Kikkoman has increased the production capacity of that plant 10-fold to meet expanding demand. [Note: Since the initial capacity was about 10,000 kiloliters/year, the current capacity must be about 100,000 kiloliters/year or 26.4 million gallons/year.] Over the years, Kikkoman has captured approximately 50% of the market for soy sauce and soy sauce-related seasonings in the USA. A bar chart shows the relative production volume growth at the Wisconsin plant. It has increased 2.4 fold since 1986. In addition to its plant in Wisconsin, Kikkoman has four subsidiaries in the USA: (1) Kikkoman International Inc. (San Francisco, California), which markets a broad range of Japanese and Asian foodstuffs, primarily soy sauce, teriyaki sauce, noodle sauce, and tempura sauce. (2) JFC International Inc. (San Francisco), North America's largest importer and distributor of Japanese and other Asian foodstuffs. (3) Japan Food (Hawaii), Inc., which wholesales soy sauce plus other Japanese and Asian foodstuffs in Hawaii. (4) Japan Food Canada Inc., which wholesales soy sauce plus other Japanese and Asian foodstuffs in Canada.

In Europe, Kikkoman's plant in the Netherlands is expected to start deliveries of soy sauce in Oct. 1997. It has an initial production capacity of approximately 4,000 kiloliters per year. "Kikkoman currently supplies the European market with soy sauce produced at its Singapore plant. When operations commence at the Dutch plant, this volume will be available to meet the burgeoning demand for soy sauce in Asia and Oceania."

In Asia and Oceania: Kikkoman has two production plants, in Singapore (est. 1983) and Tainan, Taiwan (President Kikkoman Inc., which makes a sweet soy sauce developed for local tastes; it was established in Feb. 1990 as a joint venture company). "Marketing activities in Asia are performed by Kikkoman Trading (S) Pte. Ltd. of Singapore, and JFC Hong Kong Limited, while in the competitive markets of Australia and New Zealand, Kikkoman Australia Pty. Limited is enhancing the Kikkoman name. The latest addition to Kikkoman's Asian marketing network is Shanghai Kikkoman Trading Co. Ltd., which was established in December 1995" [in China]. Address: Noda, Japan.

2439. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Soybean acreage up 15% in 1997. June. p. 1.
• ***Summary:*** "For the first time in history, farmers across Ontario will plant over 2,000,000 acres to soybeans. Statistics Canada's April 30 planting intentions report projected a 14.6% increase in soybean plantings to 2,200,000 acres–a new record. Quebec's soybean acreage is expected to increase by 9.7% to a record 252,000 acres." A graph of Canadian soybean acres shows figures for total Canada, Ontario, and Quebec from 1981 to 1997. The first Quebec figure is for 1988. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2440. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Roundup Ready update. June. p. 3.
• ***Summary:*** "Roundup Ready soybeans are the first transgenic soybeans to be produced in Canada, and with them comes a new approach to seed marketing." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2441. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Retirement best wishes. June. p. 4.
• ***Summary:*** "Michael Loh retired from the Market Development Branch of the Ontario Ministry of Agriculture, Food and Rural Affairs in March. In a note to the Board, Michael wrote, 'During my 27 year career with the Ontario civil service, export development was a personally most fulfilling experience.'

"He has already signed on as part-time coordinator of Export Market Development for the Ontario Flue-Cured Tobacco Growers' Marketing Board and will also serve as an Export Counsellor for the Business Development Bank of Canada." A photo shows Michael Loh with OSGMB chairman Tom Lassaline. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2442. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. New Soybean Board website. June. p. 4.
• ***Summary:*** "The Ontario Soybean Growers' Marketing Board is currently in the process of establishing a new, full-scale internet website at the following address: http://www.soybean.on.ca" Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2443. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Project S.O.Y. winners announced. June. p. 5.
• ***Summary:*** "The winners of the first Project S.O.Y. contest were announced on April 17th. Jennifer Lo and Nicole Lepkowski, food science students at the University of Guelph won first prize ($2,500) for their fruit-based soy custard dessert, *Fantasia.* Second place was captured by engineering students, Cori Cowan, Jody Lewis, Jennifer Kinoshita, and Karen Conrad, with their puffed soy-based product, *Soy Good Snax.* Yaling Fan and Lawrence Wang, students in agricultural business and economics, won third place with their strategy to market Ontario soymilk products to young Canadians.

"Project S.O.Y. (Soybean Opportunities for Youth) is sponsored by First Line Seeds and the University of Guelph." A photo shows Peter Hannan tasting a sample of "Fantasia" soy custard, while Lennifer Lo and Nicole Lepkowski look on. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2444. Rella Good Cheese Co. 1997. Healthy alternatives from the land of Rella (Leaflet). Santa Rosa, California. 1 p. Front and back.
• ***Summary:*** On the front of this attractive glossy leaflet are nine products marketed by the Rella Good Cheese Co. (formerly Sharon's Finest); behind them are colorful circles of every color in the rainbow. The products are: TofuRella and TofuRella Slices (Mozzarella, or Cheddar), HempRella, Zero-FatRella, AlmondRella, VeganRella, ParmaRella, and Hempeh Burger. At the bottom of the front are given the company's phone number (707-576-7050), email address (yourfriends@rella.com), and website (http://www.rella.com).

The back is titled "Rella product information for consumers." It contains ordering information, the ingredients in five of the products, advantages of the products, and a full column titled "About Rella Good Cheese Co."

"Advantages: Since 1980 we have been the leading innovator in delicious and natural cheese alternatives. Now *Enriched* will be nutritionally equal to cheese, but with less fat and sodium, and no cholesterol... Full ingredient disclosure and product information. Questions about our products? Call our toll-free Answer Line: 1-800-NJOY NOW."

"Rella Good Cheese Co., was known as *Sharon's Finest* from 1986 to 1997. We changed the name to reflect our commitment to making the best unique cheeses in the world. In 1980 Richard and Sharon Rose started *Brightsong Tofu,* an innovative tofu products company located in Petaluma, California." [Note: Brightsong Tofu was started in June 1978 by Joel Brightbill and Bob Heartsong in Redwood Valley, California. In June 1980 Dik and Sharon Rose bought the company, and in 1982 they moved it to Petaluma, California].

"Soon after we wrote our Environmental Mission Statement, including our self-imposed 'Green Tax' policy. From that tax we give at least 5% of profits to various groups working to protect the world's Rainforests, including *Rainforest Action Network, Sierra Club of Western Canada, Cultural Survival,* and *EarthSave Foundation.*

*Sharon's Finest* has also donated over $84,000 worth of food to Second Harvest Food Bank, and will donate money to groups working to legalize the commercial use of drug-free Hemp.

We believe it is important to use our business as a tool for social and environmental good. And thanks to concerned customers like you we have been able to achieve that goal!"

This information supersedes all others printed prior to 18 June 1997." Address: P.O. Box 5020 (616 Davis St.), Santa Rosa, California 95402-5020. Phone: 707-576-7050.

2445. **Product Name:** So Good (Soymilk Based on Soy Protein Isolates) [Fresh, or Aseptic].
**Manufacturer's Name:** SoyaWorld Inc.
**Manufacturer's Address:** 4074 Lozells Ave., Burnaby (suburb of Vancouver), BC, Canada. Phone: 604-420-3240.
**Date of Introduction:** 1997. June.
**New Product–Documentation:** Talk with Peter Joe of Sunrise. 1999. May 26. So Good is created under a licensing agreement with Sanitarium Foods in Australia. It was first test marketed in mid-1997 (with the name SoyaWorld Inc. on the package), then in Jan. 1998 the product was officially launched with a big TV advertising campaign. It is sold in both fresh and UHT packaging, but 90% of the sales come from the fresh product. It is targeted at mainstream Canadian consumers and sold mostly in supermarkets.

Note: This is the earliest record seen (Feb. 2010) concerning SoyaWorld, Inc.

2446. Buzzell, R.I.; Poysa, V. 1997. Two food quality soybean cultivars released by GPCRC. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 3(2):1. July.
• ***Summary:*** GPCRC is the Greenhouse and Processing Crops Research Centre (formerly Harrow Research Station). "These two cultivars, AC Onrei and OX756, have been introduced to complement Harovinton expand the export of Ontario soybeans into the premium Asian soyfood market. Harovinton, a tofu-type soybean cultivar developed at Harrow, has established Canadian soyfood soybeans as a premium quality product in Asia, where it is called 'Orient Pearl.'

"AC Onrei is a selection from the cross Vinton X Enrei. Enrei is a premium quality Japanese tofu cultivar which lacks the a4 protein sub-unit of the 11S glycinin (gy4/gy4). Enrei's superior tofu quality, especially the ability to make premium tofu using the 'nigari' (magnesium chloride) coagulant, is due to the lack of this a4 protein sub-unit. Vinton is Gy4/Gy4 and has the a4 protein sub-unit."

"OX756 was developed from the backcross of L2 X Harovinton. L2 is a backcross derived lx2/lx2 line of Century which lacks the L2 lipoxygenase isoenzyme... Harovinton is Lx2/Lx2 and has the L2 lipoxygenase isoenzyme."

"OX756 is a low lipoxygenase (lx2/lx2), yellow hilum cultivar similar in yield but earlier maturing than Harovinton, the recurrent parent. The lack of the lx2 lipoxygenase enzyme should reduce the 'beany' flavours in tofu, soymilk, and other soyfood products made with OX756, thus promoting wider acceptance of soybeans as food ingredients. It was released to W.G. Thompson and Sons, Ltd."

A table shows agronomic performance and seed quality for these two new food varieties compared with Harovinton during 8-9 years. For each variety are given: Yield, plant height, lodging score, days to maturity, weight of 100 seeds, protein %, and oil %. Address: AAFC, GPCRC, Harrow, Ontario, Canada.

2447. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada).*1997. The soybean program at GPCRC. 11(2):1-2. July.
• ***Summary:*** "Soybean research began in 1923 at the Greenhouse and Processing Crops Research Centre (GPCRC, formerly Harrow Research Station), with a variety testing program. Twenty years later in 1943 the soybean breeding program was established to develop adapted varieties for southern Ontario. One of the major variety releases from the program was Harosoy in 1951. By 1959 Harosoy represented 75% of the acreage planted to soybeans in Ontario and it was the most commonly grown variety in the United States."

"The GPCRC is comprised of three experimental farms representing the various soil types of Essex County."

Molecular biology is being used to assist in the development of disease resistant soybeans. Genes conferring specific resistance to specific races of Phytophthora root rot are being isolated."

A photo shows some of the leading soybean personnel with Agriculture and Agrifood Canada research centre at Harrow, Ontario... Dr. Lorna Woodrow, Dr. John Mullin, Dr. Vanio Poysa, and Mr. Doug Jessop. Standing is Mr. Kim Cooper, Ontario Soybean Growers'."

2448. Jessop, D.B. 1997. The food processing lab at GPCRC at Harrow. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 3(2):1. July.
• ***Summary:*** "The food processing lab at the GPCRC [Greenhouse and Processing Crops Research Centre] has, for the past several years, evaluated soybean varieties for their soymilk, tofu and miso making properties. The Grainspec whole grain infrared analyser is capable of evaluating raw soybeans for moisture, oil, protein, total sugar, colour and more recently sucrose and stachyose [an oligosaccharide that causes flatulence]. The raw beans are also analysed for water uptake in both the tofu and miso process." Address: AAFC, GPCRC, Harrow, Ontario, Canada.

2449. Kurowska, Elzbieta Maria. 1997. Soy and reduced risk of cardiovascular disease. *Soy Connection (The) (Chesterfield, Missouri–United Soybean Board)* 5(3):1, 4. Summer. [8 ref]
Address: Research Assoc., Centre for Human Nutrition, Dep. of Biochemistry, Univ. of Western Ontario, London, Ontario, Canada.

2450. *Soyafoods (ASA, Europe).*1997. New equipment from ProSoya. 8(2):6. Summer.
• ***Summary:*** Two large black-and white photos show the new equipment: (1) Continuous hydration tank (ST2000; consists of three tanks, one atop the other). (2) Low-cost desludging centrifuges (EC2000; the twin stage self-desludging centrifuges are located side-by-side). For details contact: ProSoya, Inc., 2-5310 Canotek Road, Ottawa, Ontario, Canada K1J 9N5. Phone: +1 (0)613 745-9115.

2451. Woodrow, L.; Buzzell, R.I. 1997. Sugars in food processing soybeans. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 3(2):2. July.
• ***Summary:*** "The soybean program at the Greenhouse and Processing Crops Research Centre [formerly Harrow Research Station] focuses on the development of lines with characteristics suited to the domestic and export food processing markets. Seed characteristics such as hilum and seed coat colour; storage protein content and profile;

enzyme profile; oil content and fatty acid composition; total carbohydrate content; and free sugar composition are important determinants of the food processing performance of soybeans into products such as soymilk, tofu, and miso."

"As soybeans mature, free sugars are synthesized and form part of the storage reserves of the seed. When the seed germinates, these sugars represent the first energy available to the young seedling... Glucose and sucrose are present in most fruits and vegetables, raffinose and stachyose are found in some plant families including legumes. These sugars are synthesized in a pathway that leads from the monosaccharide glucose to sucrose (disaccharide), raffinose (trisaccharide) and finally the tetrasaccharide, stachyose. In the mature soybean sucrose and stachyose are present at levels ranging from 3.0-8.0% by weight dry matter depending on the variety or line. Raffinose and glucose are intermediates in the synthesis and are present at much lower levels in the mature seed."

A graph shows the glucose, sucrose, raffinose, and stachyose contents of 40 soybean varieties and lines, plotted to show their relationships with the total free sugar content. The data illustrates that among lines increasing total free sugar content is correlated with an increase in sucrose. Sucrose is the most abundant sugar in mature soybeans, followed by stachyose, then raffinose. Glucose and fructose are present in only trace amounts. Address: AAFC, GPCRC, Harrow, Ontario, Canada.

2452. Nordquist, Ted. 1997. Re: Establishing TAN Industries, Inc. in California and update on work with soyfoods. Letter to William Shurtleff at Soyfoods Center, Aug. 4. 2 p. Preceded by an interview on July 14.
• ***Summary:*** "I incorporated TAN Industries, Inc. in California [in about mid-1991, shortly after Ted's mother died in Feb. 1991. Ted had also incorporated a TAN AB is Sweden]. I commuted from Örsundsbro, Sweden, to California (lots of frequent flyer miles) from 1992 until August of 1994, when my family joined me in Sonoma, California. In January of 1995, TAN Industries started packaging and selling soy beverage in extended shelf-life refrigerated packaging. We believe we are now the largest packager and seller of a formulated refrigerated extended shelf-life (12 weeks) soy beverage in the United States.

"TAN Industries, Inc. specializes in vegetable-based dairy-like products such as beverages, yogurts, ice creams and, as you may know, puddings as required. TAN has its own process, comprised of specially designed equipment to process whole soybeans into high quality, good tasting and nutritious vegetable-based dairy-like products at competitive prices. Usually economy of scale dictates a minimum production order of approximately 12,000 gallons on each processing occasion. TAN seeks to enter into contractual agreements to provide product to companies where distribution and marketing are already in place.

"TAN will develop specific products for customers or TAN will develop a product and present the product wholesale, FOB factory, to a prospective company capable of taking the product to market.

"In 1996, TAN has entered a contractual agreement with a producer of rice-based beverage. This enables TAN to offer both Rice beverages and related products, as well as Soy."

"After many years, I have learned some ways to keep out of debt, realizing that being low on money will not help the cause and that I must move slowly enough to keep the money flowing in at least as fast as it flows out. So there is some dampened enthusiasm for moving ahead too quickly in exchange for what looks to me to be a solid, sensible path to long term business and growth.

"Much of this success I owe to Henry Glasser, my partner and long time friend of my father's best friend. I sit in this office and consult with his wisdom, content to see TAN Industries, Inc. continue in the black toward goals we both share."

Note: TAN Industries is listed in the *1997 Soya Bluebook Plus* (published Sept. 1996) on pages 185 (manufacturer of soymilk) and 285 (equipment supplier and consulting).

Ted Nordquist now lives in California. His company, TAN Industries, Inc., operates out of the office of Henry Glasser, an attorney in San Francisco. He was involved in the development and formulation of Silk, a fresh soymilk product launched by White Wave in Jan. 1996. He was having this product made by ProSoya in British Columbia, Canada, but now it is apparently being made somewhere else–perhaps in Los Angeles. His main goal now is to develop a soymilk product that will compete with Lactaid. Address: TAN Industries, Inc., 351 California St., Suite 1330, San Francisco, California 94104; 660 Vischer Ct., Sonoma, CA 95476. Phone: 415-398-8007.

2453. Brandenburg, Fred. 1997. Genetically engineered soybeans in Canada (Interview). *SoyaScan Notes.* Aug. 5. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** If users of food-grade soybeans want soybeans that are guaranteed to be free of GMO (genetically modified organisms), they can talk with individual Canadian soybean exporters (like W.G. Thompson & Sons Ltd. in Blenheim, Ontario). Thompson can then contract with farmers in advance, and have the beans shipped from the farm to Thompson.

Shurtleff argues that this will raise the price of soybeans considerably, and that it would be more cost effective to try to set aside geographical areas where all farmers in that area agreed to grow non-GMO soybeans, which could then flow from local elevators through the conventional distribution channels. Shurtleff also argues that Canada is in a unique position to take market share

away from the USA by aggressively promoting guaranteed non-GMO soybeans, without in any way suggesting that there is anything wrong with GMO soybeans. Address: Secretary/Manager, Ontario Soybean Growers' Marketing Board, Box 1199, 175 Keil Dr., S., Chatham, ONT, N7M 5L8, Canada. Phone: 519-352-7730.

2454. Newshour with Jim Lehrer. 1997. Osteoporosis, calcium, and the U.S. diet. Television broadcast. PBS. Aug. 14.
• ***Summary:*** Americans and Canadians need more calcium in their diets to guard against the bone disease osteoporosis, according to a report released yesterday by the Institute of Medicine (an affiliate of the National Academy of Sciences) in Washington, DC. The study recommended increasing the daily dose of calcium for adults to 1,000–1,300 mg, depending on age. That is an increase from the current 800–1,200 mg which had been recommended by the National Academy of Sciences. Many women and teens still get less than 600 mg/day.

"Calcium can be consumed in dairy products and foods such as broccoli and tofu." Note: Experts agree that getting enough calcium is essential to building strong bones. Other good sources are calcium-fortified soymilk and calcium-fortified orange juice. Another key to keeping calcium levels high is retention–smoking, coffee, and intense physical exercise all deplete calcium stores–as does excess protein consumption.

2455. *SoyaScan Notes.*1997. Update on ProSoya (Overview). Sept. 23. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** The following is based on a talk with a person who just returned from the Natural Products Expo in Baltimore, Maryland, and wishes to remain anonymous. ProSoya now has an office in the United States, run by Fred Webster. It is: International ProSoya Corp., 106 Sunset Dr., New Hope, Pennsylvania 18938. Phone: 215-862-5715.

ProSoya from British Columbia, Canada, has a booth at the show. A fellow named Jerry Duncan at that booth was unusually rude and nasty to two potential customers who tried to approach him. First he said that ProSoya sold only a soymilk system (equipment), not the soymilk itself. When this American businessman said he was interested in buying soymilk, not a system, Mr. Duncan said that he would sell soymilk only if the final product was sold under the ProSoya brand, and the co-packing was taken care of by the American person.

2456. Webster, Fred. 1997. International ProSoya Corp. launches SoNice soymilk and yogurt in the USA (Interview). *SoyaScan Notes.* Sept. 30. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Fred is the first U.S. employee of International ProSoya Corp., which is in the process of launching three products: (1) SoNice soymilk, in aseptic cartons (1 liter, and 250 ml x 3), in 6 flavors (vanilla, chocolate, natural {soybeans and water}, original {with added sweetener}, strawberry, and cappuccino); expected retail price is $1.99/liter. (2) SoNice fresh soy beverage in gable-top cartons, in 2 sizes (quart and half gallon); expected retail is $1.99 and $2.99 respectively. (3) SoNice soy yogurt, in 5 flavors (vanilla, strawberry, raspberry, black cherry, and fieldberry), refrigerated (45 day shelf life) in a 6 oz cup; expected retail price is $0.99/cup.

These products were first introduced to the U.S. market in late September 1997 at the Natural Products Expo in Baltimore, Maryland–where they were preferred to all competing products for their good flavor. They are all made in British Columbia, Canada, but packaged in New Jersey. He will start shipping to U.S. distributors next week. The two types of soymilk should be available in food stores in mid-October and the soy yogurt in mid-November. In March 1997, International ProSoya Corp. opened a sales office in Toronto, Ontario, Canada. Address: International ProSoya Corp., 106 Sunset Drive., New Hope, Pennsylvania 18938. Phone: 212-862-5715.

2457. Canadian Soybean Export Association. 1997. Food soybean–Conference & tradeshow: September 10 & 11 1998, Westin Hotel, London, Ontario, Canada (Leaflet). Ontario, Canada. 6 panels.
• ***Summary:*** The full conference program and itinerary, which goes from Tuesday, Sept. 8 to Friday Sept. 11, is given in outline form.

2458. Ontario Soybean Growers' Marketing Board (OSGMB). 1997. Overview of the Canadian soyfoods market. Chatham, Ontario, Canada: OSGMB. 44 p. 28 cm.
• ***Summary:*** This excellent, complete, and accurate market study was compiled by the Collège d'Alfred of the University of Guelph, under contract with the Ontario Soybean Growers' Marketing Board (OSGMB). The project leaders were Suzanne Lavoie, Charles Goubau, and Ian Walker. The field research was conducted between Jan. 15 and Aug. 31, 1997. The first study of the Canadian soyfoods market was published in March 1990 (vi + 40 pages).

Contents: Acknowledgments. Summary. Introduction. Research procedures: Methodology, limitations (of the 100 companies in this study, over 75% were visited, interviews were conducted in person, and product samples were collected). The Canadian soyfoods market: History, structure of the Canadian soyfood industry, market highlights by region (The Maritimes, Quebec, Ontario, the Prairies {Manitoba, Saskatchewan, and Alberta}, British Columbia), factors influencing the soyfoods market (A closer look at Canadian demographic trends, a closer look at

Canadian immigration trends, a closer look at vegetarianism and family food expenditure trends, research on soyfoods and their health benefits, the American influence). Supply and demand of soybeans for use in soyfoods: Soybean production in Ontario, imports and exports of soybeans, imports and exports of soy products, the soybean crushing industry in Ontario, consumption of whole soybeans by soyfood processors. Opportunities in the Canadian soyfoods market. Soyfood processors and their needs. Market opportunities for food-grade soybeans. Summary comments. Bibliography.

Tables show: (1) Major soyfood companies established in the province of Quebec (p. 13). (2) Major soyfood companies established in the province of Ontario (p. 16). (3) Major soyfood companies established in the province of British Columbia (p. 19).

(4) Percentage of change in units and sales (p. 21). (5) Percentage distribution of population–Canada (p. 22). (6) Percentage distribution of age groups–Canada (p. 22; In the 15-24 age group, 19% did not eat meat in 1992, down from 23% in 1986).

(7) Percentage of population who do not eat meat & share of budget spent on meat, Canada 1986 and 1992 (p. 28). (8) Canadian soybean: Supply and disposition (September–August crop year)–in metric tonnes (p. 31). (9) Canadian soybean exports by country of destination (p. 32. In 1997-98 some 325,000 tonnes went to the European Union, 145,000 to the USA, 85,000 to Japan, 40,000 to Hong Kong, 75,000 to other Asia, and 15,000 to other places).

(10) Imports and exports–All countries, dollar values (p. 33. The leading imports are soybean meal $202.7 million, crude soybean oil $16.75 million, and whole soybeans for oil extraction $12.59 million. The leading exports are protein concentrates and textured protein substances $9.1 million, soybean meal 6.5 million, and brans, sharps and other residues $4.3 million).

(11) Soybean crushing facilities in Canada (p. 34. All are located in Ontario province; ADM Agri-Industries Ltd., Windsor. Capacity: 3,600 tonnes/day of raw soybeans. CanAmera Foods, Hamilton, 3,000. Helin Oil Packers, Whitby, 250. Started crushing in 1997. Cold Springs Farm Ltd., Thamesford, 100. Started 1995. Sunfield Oil Seeds, Wingham, 100. Started 1994. Dennis Jackson Seeds Services Ltd., Dresden, 40. Started 1994. Tri County Protein Corporation, Iroquois, 100. Not in operation yet).

(12) Estimated quantities of soybean utilized by soyfood processors–1996–metric tonnes (p. 35. Total volume of whole soybeans consumed: 9,650 tonnes, of which 4,780 are for soymilk, 4,775 are for tofu, and 95 are for other soyfood products). Total volume of whole soybeans consumed by province (by soyfood processors): British Columbia 3,825 tonnes, Ontario 3,050 (excluding crushing plants), the Maritimes and Quebec 2,535, and the Prairies 240.

(13) Major foreign companies in the Canadian soyfood market (p. 37. Soy cheese: Soyco Foods, Sharon's Finest, Cemac Foods Corp. {Nu-Tofu}. Frozen desserts: Tofutti Brand, Inc. Tempeh: Turtle Island Foods Inc. Tetra Pak packaged soymilk: Westbrae Natural Foods, Cenat, Pacific Select, Vitasoy USA Inc., Eden Food Inc. Tofu: Mori-Nu, Vitasoy USA Inc. Prepared dishes: Amy's, Sharon's Finest. Meat analogs: Fantastic Food Inc. MGM Brands, Northern Soy, Soy Boy, Turtle Island Foods Inc. Salad dressing: Nasoya Foods. Soy sauce: Eden Foods Inc., Kikkoman Foods Inc.).

The Prairie Provinces (Manitoba, Saskatchewan, and Alberta) contained about 16.6% of Canada's population (4.5 million persons) in 1995. "The province of Alberta [Capital = Edmonton] is different from the other two Prairie provinces, due mainly to its larger population base, its growing Oriental population and its proximity to Vancouver. Calgary [a large city in Alberta province] and Edmonton have their own Chinatowns, including small Oriental-owned tofu and soymilk production facilities." Note: According to the Canadian Soyfoods Directory (1997, p. 14), there are 7 soyfoods companies in Alberta province, 2 in Manitoba, and none in Saskatchewan. Address: OSGMB, 180 Riverview Dr., P.O. Box 1199, Chatham, ON N7M 5L8, Canada. Phone: 519-352-7730.

2459. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Profile: ADM. Sept. p. 15.

• ***Summary:*** In 1997 ADM was successful in acquiring up to 45% interest in United Grain Growers (UGG), Canada's largest farm co-op. Martin Andreas, Senior Vice President at ADM's headquarters in Decatur, Illinois, says that ADM plans further investments in Canada. The company already has 10 flour mills there, in addition to its soybean and canola business, and now its association with UGG.

Ontario soybean growers are most familiar with ADM through its Windsor elevator and crush complex, and through its elevators in the southwest, including elevators at Essex and Maidstone. While the company does not disclose its crush volumes, industry watchers estimate that ADM is processing approximately 25 million bushels of oilseeds a year at its recently expanded and modernized plant in Windsor, Ontario.

"Windsor's two extraction plants can crush either soybeans or canola, and it makes little difference in terms of plant operation whether the soybeans are grown in Ontario or the U.S."

"ADM is more closely allied to farmers and elevators than its competitors. Andreas agrees. 'In the U.S. alone, we need 9.5 million bushels of grains and oilseeds a day to meet our processing and export requirements,' he explains.

'We must be closely allied with the people who are the producers of our raw materials.'"

"ADM's recent investment in Saskatchewan-based UGG reflects its policy around the world. ADM has agreements in place in the U.S. with the 175,000-member Growmark co-op, as well as with Countrymark and Riceland. It also has a one-third interest in the peanut co-op, Golden Peanut."

"Internationally, ADM has a 50 percent equity position in Europe's A.C. Toepfer, which with 2.5 million members, is the largest farm cooperative in the world." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2460. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Arbitration award imposes radical changes. Sept. p. 1, 11-14.
• ***Summary:*** In December 1996, ADM Agri-Industries and CanAmera Foods (Canada's two largest soybean crushers) announced that, for all soybeans they purchase for delivery after 1 Sept. 1997, they would implement a 13% moisture standard, with an allowance of 1% for dockage and foreign material. The previous moisture standard had been 14%. Thus after Sept. 1 soybeans that contain more than 13% moisture when delivered, will be assessed a percent discount–based on the price of the soybeans at the time of sale. This discount is intended to cover drying charges, invisible loss, and moisture shrink. Tables show: Sample calculations (p. 12). The percentage discount for different moisture rates (p. 13). Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2461. **Product Name:** Soy Nut Snacks [Honey Dijon, BBQ, Sea Salt, Yoghurt & Green Onion, Unsalted].
**Manufacturer's Name:** Skeet & Ike's.
**Manufacturer's Address:** #216–2323 Quebec St., Vancouver, BC V5T 3A3, Canada. Phone: 604-879-9100.
**Date of Introduction:** 1997. September.
**Ingredients:** Incl. dry roasted soybeans.
**Wt/Vol., Packaging, Price:** 1.7 oz (50 gm) or 9 oz (255 gm) bags, or 20 lb bulk. Suggested retail price: $0.85 for 1.7 oz or $3.10 for 9 oz.
**How Stored:** Shelf stable.
**New Product–Documentation:** Leaflet (8½ by 11 inch, color, glossy, front and back) from Natural Products Expo West (Anaheim, California). 2000. March. "New. Soy nut snacks." "Dry roasted, certified organically grown soy beans. Certified not genetically altered soy beans. All natural seasonings–nothing artificial. A tasty way to enjoy the benefits of soy. Attractive wood stand is free with your order. Who says snack food has to be junk food?" A color photo shows the package for all 5 flavors with the Label (front panel). Web-site www.skeetike.com. Ike is a dog.

Talk with Ian Walker, half owner of Skeet & Ike's. 2000. April 14. This company was established in May 1996 as a peanut butter manufacturer. They started roasting soybeans to make soynuts in Sept. 1997, introducing all 5 flavors they still make. They started selling their soy nuts in the USA in Sept. 1998, first in the Pacific Northwest. They discontinued peanut butter and all tree nut products because a growing number of people are deathly allergic to them. The company now has 10-12 employees. Ian has heard that some people who are deathly allergic to peanuts are actually deathly allergic to the sprays used on peanuts in the fields rather than to the peanuts themselves. He has also heard that a very small number of people are deathly allergic to dairy products and to soybeans. Ian would estimate that there are 10 soynut makers in Canada, including Hockley Valley in Ontario. One U.S. maker is Nature's Select in Grand Rapids, Michigan; Peter Assaly is president.

2462. Rahardjo, Grace. 1997. Making tempeh in Canada (Interview). *SoyaScan Notes.* Oct. 6. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Grace, who was born in Indonesia, has been making tempeh at her home in Canada for the last 5 years (i.e. since about 1992). She sells it to her friends and church members, but not in stores. Her emphasis is on quality: it has a whiter mycelium and is more juicy than commercial tempeh. She comes from central Java, about 200 km from Yogyakarta. She will soon be visiting Java and would like to meet Dr. Sastroamijoyo. Address: 1442 West 33rd Ave., Vancouver, BC V6M 1A5, Canada. Phone: 604-264-0181.

2463. Golbitz, Peter. 1997. Re: N. Chapman Associates, Inc. to become the Soyfoods Association of America's new management team. Letter to members of the Soyfoods Association of America, Oct. 24. 1 p.
• ***Summary:*** This letter is written on the new Association letterhead: The address of N. Chapman Associates is 1723 U. Street, N.W., Washington, DC 20009. Phone: 202-986-5600. "Nancy Chapman, R.D., M.P.H. and Becky Stephens, M.S. of Chapman Associates, Inc. assumed responsibility for the daily activities of the association on October 10. We are delighted to move our headquarters to their offices in the heart of Washington, DC." Nancy Chapman has worked with the Board and the American Soybean Association for over eight years. Lists three areas in which Chapman Associates proposes to help member companies.

Talk with Peter Golbitz. 1997. Oct. 31. This choice was made in late September at the Board meeting in Baltimore, Maryland. Chapman Associates is a small organization that is deeply interested in the Soyfoods Association and well suited to manage it. They have been given a 6-month contract with the main goal being to increase membership–especially among large companies. The name of the organization will probably be changed back to Soyfoods Association of North America to attract potential members

in Canada and Mexico. Address: Soyatech, P.O. Box 84, Bar Harbor, Maine 04609. Phone: 207-288-4969.

2464. Broten, Lorne H.A. 1997. New developments at International ProSoya Corp. (Interview). *SoyaScan Notes.* Oct. 29. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The company name has been changed. A new company, International ProSoya Corporation (IPC), was incorporated in the fall of 1996. An agreement was reached for IPC to purchase all the shares of ProSoya, Inc. (PSI), which will become a wholly owned subsidiary of IPC; the deal has not yet been finalized. Pacific ProSoya Foods, Inc. (the food manufacturing company in British Columbia) has been merged into IPC. Sales of small-scale soymilk equipment and equipment sales to the former Soviet Union countries will generally be handled by PSI, but those who wish to buy large systems must talk directly with Lorne and buy the system from IPC. A company or person in the USA can buy a small soymilk system (200 liters/hour or less) from PSI, but they cannot buy a large soymilk system because IPC is developing their own company in the USA based on their patented soymilk technology–and they do not want competition form their own soymilk systems.

International ProSoya Europe (a subsidiary of IPC, created in Jan. 1997 and began operation in June 1997) is now constructing a soymilk plant in the United Kingdom (in Livingston, Scotland) as part of a joint venture. Dusty Cunningham, who is a director of IPC, is there helping to get the project started–but she is not the person in charge. The factory is expected to begin making soy products in early 1998–an aseptic soymilk, a soy yogurt, soy ice creams, and other food products based on the company's soymilk. There are a number of shareholders in the new joint venture, one of whom is named McCorkle; the joint venture is not with an existing European soy company.

In the future, IPC plans to focus on joint ventures internationally (using IPC soymilk technology), and to place much more emphasis on making and selling foods based on soymilk than on selling equipment. Lorne thinks that two more joint ventures will be finalized in 1998; the details are confidential at present. Part of the capital for all this expansion comes from joint venture partners and PIC raises part of it themselves; they are planning to do an initial public offering (IPO) in 1998 as well–open to the public.

IPC has been so busy lately that Lorne is not sure whether they will continue the newsletter or not; they will discuss it at a board meeting soon.

Ted Nordquist is currently involved with a soymilk plant in Los Angeles, California. He has been buying soymilk from IPC. Lorne has heard that Ted is coming out with his own brand of soymilk. In France, Sojinal has been bought out; Lorne thinks that Sojinal makes a better soymilk product than Alpro. Address: President and CEO, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC V3S 8E5, Canada. Phone: 604-532-8030.

2465. Hardy, Ralph W.F.; Segelken, Jane Baker; Voionmaa, Monica. 1997. Resource managements in challenged environments. *NABC Report (National Agricultural Biotechnology Council, Ithaca, New York)* No. 9. 168 p.
• ***Summary:*** More than 100 people attended this ninth annual meeting, hosted 1-3 June 1997 by NABC member institution University of Saskatchewan–the first NABC meeting in Canada. Twenty-one papers were presented, both pro and con. Address: 1. President; 2. Executive Coordinator. Both: NABC, Boyce Thompson Inst., Tower Road, Ithaca, New York 14853.

2466. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Profiles: Helin Oil Packers, Phil Iocavedes, and Jim Papadopoulos. Oct. p. 7.
• ***Summary:*** Helin Oil is a new oilseed crushing company, located on Hopkins Street in Whitby, Ontario, just east of Toronto–the site of a former Ralston Purina feed mill. By mid-winter Helin plans to buy 2 million bushels a year of Ontario soybeans, which it will convert into "high-quality partial-fat soymeal for dairy farmers in Ontario and nearby states," and a variety of soybean oil products to be sold in Canada and overseas.

Phil Iocavedes (whose photo is shown) "will manage the plant, reporting to Jim Papadopoulous, director of operations for Helin Oil and one of the principals in Empire Foods Ltd., the Markham wholesale food and paper company that three years ago decided the time was ripe to build a vegetable oil business in the province. Both Helin Oil and Empire Foods are now owned by Helin Industries Ltd., which will be traded publicly starting in mid-October on the Alberta Stock Exchange.

"Ontario's oilseed crushing industry may be dominated by international giants CanAmera Foods and Archer Daniels Midlands, which crush nearly 60 million bushels of soybeans a year at their Hamilton and Windsor locations, with a value in round terms of $500 million."

"Papadopoulos was born in Greece and moved to Canada at the age of 17 years."

"The company is considering becoming Canada's first marketer of mechanically pressed crude oil

"With a staff of 35, the Whitby plant will be running its four expellers and six extruders 24 hours a day, seven days a week to crush 200 to 240 tonnes of cold-press oil per day." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2467. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Notice of annual meeting: Thursday, December 4 & Friday, December 5, 1997 at Best Western Wheels Inn, Chatham, Ontario. Oct. p. 1-4.

• ***Summary:*** All soybean growers are invited to attend OSGMB's annual meeting. An alternative "delicious soyfoods lunch" is scheduled for Thursday. Speakers will include: (1) Murray McLaughlin, Ontario Agri-Food Technologies: "Agricultural biotechnology." (2) Leo Guilbeault, Essex County Farmer: "A grower's experience with Roundup-Ready soybeans." (3) Charles Goubau, College D'Alfred of the University of Guelph: "Canadian soyfoods study and directory." (4) Peter Hannam, First Line Seeds: "Capitalizing on food-quality soybean opportunities." (5) Stephen Barnes, University of Alabama at Birmingham: "The health benefits of soybeans."

There are many prizes for those who pre-register. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2468. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. International biosafety protocol. Oct. p. 6.
• ***Summary:*** "In 1992 Canada was one of several countries to sign into the United Nations' Convention on Biological Diversity. Since then, Canada has been actively involved in negotiating the details of this agreement.

"The intent of the Convention is to manage the trans-boundary movement of 'living modified organisms' in order to protect world biodiversity. Living modified organisms or 'LMO's' are described as all plants, animals, seeds, embryos, and microbes that have been modified using the process of 'biotechnology'...

"The intent of the agreement seems harmless, but if it is ratified, it will drastically impede global agricultural trade, especially trade with smaller, developing countries. The new protocol would require that all transboundary shipments of LMO's be preceded by 'advanced informed agreements' and formal approvals from importing countries. The proposed 'biosafety protocol' has a zero-tolerance for trans-boundary movement of LMO's. In other words, unless exporters can guarantee that their shipments are 100% free of living modified organisms, they will be required to provide prior notice and seek formal approval before shipping. This will require an enormous amount of administration and paperwork, as well as the establishment of another formal international appeals process." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2469. **Product Name:** SoNice Soy Yogurt [Vanilla, Strawberry, Raspberry, Black Cherry, and Fieldberry].
**Foreign Name:** SoNice Yogourt de Soja (Vanille, Fraise, Framboise, Cerise Noire, Baies des Champs).
**Manufacturer's Name:** ProSoya Foods Incorporated.
**Manufacturer's Address:** 312–19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: (604) 532-8030.
**Date of Introduction:** 1997. October.
**Ingredients:** Vanilla: Vanilla: Filtered water, certified organic soybeans, cane sugar, glucose, natural flavor, modified corn starch, pectin, locust bean gum, lemon juice concentrate, active bacterial culture.
**Wt/Vol., Packaging, Price:** 175 gm (6 oz.) plastic yogurt cup. Retails for $0.99.
**How Stored:** Refrigerated, 45 day shelf life.
**New Product–Documentation:** Talk with Fred Webster, head of International ProSoya Corp. office in New Hope, Pennsylvania. 1997. Sept. 31. This product, made in British Columbia, Canada, and packaged in New Jersey, will be introduced to the U.S. market in mid-November, 1997, in 5 flavors (vanilla, strawberry, raspberry, black cherry, and fieldberry), refrigerated (45 day shelf life) in a 6 oz cup; expected retail price is $0.99/cup.

Talk with Lorne Broten, President and CEO, International ProSoya Corp. 1997. Oct. 29. This product is just now being launched in Canada.

Talk with George Conquergood of IPC. 1999. May 10. This product was introduced in the fall of 1997 at the Natural Products Expo in Baltimore, Maryland. It went on the market right away, and was most widely available in western Canada. But some product was available in eastern Canada. Since it was a refrigerated product with a short shelf, it disappeared rapidly from the shelves and was probably totally out of stock by the summer of 1998. SoNice Yogurt never peaked. The best yogurt they ever made was the first. But the company president did like its consistency; it tended to be somewhat loose, almost like a drinkable yogurt. "Then they started messing around with it on the fly–much to my disgust. They kept on changing the formula. Our quality control person, who was also our R&D person, started experimenting with starches and stuff–which totally ruined the product. The last yogurt we produced–I was absolutely livid that we shipped it. It was gross." IPC could have kept selling yogurt because they had complete control over both the manufacturing and the packaging in the western Canada plant. But when they withdrew the other products from sale in July 1998, they withdrew the yogurt as well. George was delighted since I felt that yogurt shouldn't have been on the market in the first place–it would eventually have given the company a bad name.

Packages with Labels (plastic yogurt cups in five flavors) sent by George Conquergood. 1999. May. Each cup has a colorful design. The background color is that of the fruit flavor, and a bold illustration of that fruit appears on the front panel. "Cholesterol and lactose free. With active Acidophilus and Bifidus cultures. Stirred." UPC indicia and Kosher symbol on each package.

2470. Ritchason, Shelly. 1997. Farmland's original mission rolls into the 21st century: Meeting producer-owner needs still tops the cooperative's list. *Farmland System News (Kansas City, Missouri)* 65(10):8-9. Oct.
• ***Summary:*** Farmland Industries was founded in 1929 as the Union Oil Company (Cooperative) when six farmer-

owned cooperatives joined forces to buy and distribute petroleum products. The founder, Howard Cowden, wanted to increase producers' bargaining and purchasing power in a rapidly-growing petroleum market. The first slogan was "Our profits are your dividends." An old black-and-white photo shows the original location with large petroleum tanks. A color photo shows Farmland's headquarters, with its sky, cloud, and land logo, below which is written "Proud to be farmer owned." "Today, Farmland Industries Inc. is owned by more than 1,400 farmer-cooperative associations which, in turn are owned by about half a million farmers and ranchers across the United States, Canada, and Mexico, and 13,000 pork and beef producers who own the North American co-op directly."

2471. *GMF–Genetically Modified Foods Market Intelligence (Genetic ID, Fairfield, Iowa).*1997. Growing non-GMO niche stirs debate. No. 14. Nov. 4. p. 1.

2472. Ontario Soybean Growers' Marketing Board (OSGMB). ed. and comp. 1997. Canadian soyfoods directory. Chatham, Ontario, Canada: OSGMB. 27 p. 28 cm. • ***Summary:*** This excellent, complete, and accurate directory was compiled by the Collège d'Alfred of the University of Guelph, under contract with the Ontario Soybean Growers' Marketing Board (OSGMB). The project leaders were Suzanne Lavoie, Charles Goubau, and Ian Walker. The first Canadian soyfoods directory was published in April 1994 (22 pages).

Contents: Foreword–Ontario Soybean Growers' Marketing Board (OSGMB). Acknowledgements from researchers. Table of contents. Soyfood product descriptions: Green vegetable soybeans–Edamamé, meat analogs, miso, natto, okara, soy cheese, soy flour, soy frozen desserts, soy grits, soy isolate fibre, soy lecithin, soy oil, soy protein concentrate, soy protein isolate, soy pudding, soy sauce, soy sprouts, soy yogurt, soymilk (soy drink and soy beverage), soynuts, tempeh, textured soy flour–TSF, texturized soy protein, tofu, whole dry soybeans, yuba. Soyfoods for your health: Heart disease, cancer, osteoporosis, other conditions. Composition and nutrient value of soyfoods. Soyfood companies by product. Soyfoods companies by province: Alberta (7), British Columbia (21), Manitoba (2), Nova Scotia (2), Ontario (54), Quebec (20). Soyfood companies (105 companies that make or market wholesale soyfoods)–complete listings (address, phone and fax numbers, contact person, products). Soyfoods distributors–complete listings (13). Soybean distributors–complete listings (28). Research information sources–complete listings (24). Soyfoods information sources (23). Canadian soyfoods directory questionnaire.

Spot in *Ontario Soybean Growers' Marketing Board Newsletter.* 1997. Dec. p. 5. The Canadian Soyfoods Directory was launched in November after a two-month delay. "The project was undertaken following numerous information requests from consumers, processors and health professionals." Funded by the Board of OSGMB, it has been mailed to all Registered Dietitians across Canada, and it will soon be available on the Board's website. Address: OSGMB, 180 Riverview Dr., P.O. Box 1199, Chatham, ON N7M 5L8, Canada. Phone: 519-352-7730.

2473. **Product Name:** SoNice Yule Nog (Eggless Soymilk EggNog–Refrigerated).
**Manufacturer's Name:** ProSoya Foods Incorporated.
**Manufacturer's Address:** 312–19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: (604) 532-8030.
**Date of Introduction:** 1997. November.
**Ingredients:** Soymilk (fairly rich), cane sugar, carrageenan, nutmeg, artificial flavor.
**Wt/Vol., Packaging, Price:** 1 liter refrigerated gable-top carton.
**How Stored:** Refrigerated.
**New Product–Documentation:** Color sell sheet (leaflet) sent by George Conquergood of IPC. 1999. April 21. At the top is written "So Nice" in large green letters. Below that in nutmeg-colored script: "Yule Nog–Just in time for the holidays." At the bottom is a "wood block" style bowl and ladle. In the background is a wreath of holly on a beige background.

Talk with George Conquergood of IPC. 1999. May 28. This product was introduced in Nov. 1997 for the holiday season. It was sold refrigerated, packed in a gable-top carton at Farmland Dairies in New Jersey. It was on the market until January 1998; only two production runs were ever done. Most customers loved the product and wanted IPC to continue making it all year long. George invented this product and first made it in March 1993 at his Sweet Carrot Café–Health Bar & Deli is Saskatoon, Saskatchewan, Canada. Note: The ingredients in typical eggnog are: eggs beaten with sugar, milk or cream, and often alcoholic liquor. SoNice Yule Nog contained no eggs or alcohol, but it did contain sugar.

2474. **Product Name:** ProSoya SoNice: Soy Beverage (Fresh in 1 Quart ESL Gable-Top Cartons for USA) [Natural, Chocolate, Vanilla Lite].
**Manufacturer's Name:** SoNice Soy Corporation. Subsidiary of International ProSoya Corp.
**Manufacturer's Address:** P.O. Box 93009, Langley (Vancouver), BC, V3A 8H2 Canada. Phone: (604) 532-8030.
**Date of Introduction:** 1997. November.
**Ingredients:** Natural: Filtered water, certified organic soybeans. Chocolate: Filtered water, certified organic soybeans, cane sugar, cocoa, modified corn starch, tricalcium phosphate, sea salt, carrageenan, vitamin A

palmitate, vitamin D-3, vitamin B-12, riboflavin, zinc gluconate.
**Wt/Vol., Packaging, Price:** 1 quart ESL gable-top carton. Retails for $1.99.
**How Stored:** Refrigerated, 85 day shelf life.
**Nutrition:** Chocolate: Per 1 cup (240 ml): Calories 130, calories from fat 30, total fat 3.5 gm (5% daily value; saturated fat 0 gm), cholesterol 0 mg, sodium 150 mg (6%), total carbohydrate 18 gm (dietary fiber 0 gm [0%], sugars 15 gm), protein 6 gm (12%). Vitamin A 10%, calcium 25%, vitamin D 20%, vitamin B-12 20%, vitamin C 0%, iron 8%, riboflavin 20%, zinc 10%. Percent daily values are based on a 2,000 calorie diet.

Natural: Per 1 cup (240 ml): Calories 70, calories from fat 30, total fat 3.5 gm (5% daily value; saturated fat 0 gm), cholesterol 0 mg, sodium 5 mg (0%), total carbohydrate 3 gm (dietary fiber 0 gm [0%], sugars 1 gm), protein 7 gm (14%). Vitamin A 0%, calcium 6%, vitamin C 0%, iron 4%. Percent daily values are based on a 2,000 calorie diet.
**New Product–Documentation:** Talk with Fred Webster, head of International ProSoya Corp. office in New Hope, Pennsylvania. 1997. Sept. 31. This product, made in British Columbia, Canada, and packaged in New Jersey, will be introduced to the U.S. market in mid-October, 1997, in quarts and half gallons. Refrigerated (45 day shelf life); expected retail price is $0.99/cup.

Talk with Lorne Broten, President and CEO, International ProSoya Corp. 1997. Oct. 29. This product was launched in Canada in Jan. 1997. It is available in 1 liter and 2 liter gable-top ESL cartons.

Talk with Steve Demos, president of White Wave. 1998. Aug. 10. He heard about 10-14 days ago that the SoNice brand, both aseptic and gable top, is no longer being shipped to market. The company's first comment was "Packaging problems," and then it was "money problems." Quart cartons for Natural and Chocolate sent by George Conquergood of IPC. 1999. April. The Chocolate front panel reads: "Fortified with vitamins A, B2, B12 & D and calcium. Cholesterol and lactose free... Made with certified whole organic soybeans. 1.4% fat."

Talk with George Conquergood. 1999. June 2. The quarts for the U.S. market were introduced in Oct. 1997 at the Natural Products Expo in Baltimore, Maryland, and shipped in November. They were targeted at the mainstream consumer, and so were sweetened with liquid white sugar; the aseptic products, targeted at the natural foods consumer, were sweetened with agave. Fortification terminology was allowed on the U.S. products but not on many Canadian products. U.S. and Canadian packages had different nutritional labeling because: (1) U.S. products must bear the heading "Nutrition Facts." (2) The rules for rounding off nutrient values are different in the two countries. (3) The serving size is 1 cup (240 ml) in the U.S. vs. 250 ml in Canada. (4) The U.S. prefers quarts while Canada uses the metric system–like almost all other countries worldwide. These differences created a packaging nightmare for IPC. Fred Webster was and employee of IPC and the company's master broker for the USA, with focus on the East Coast. IPC set up the West Coast complete separately from Fred.

2475. Tibbott, Seth. 1997. Current state of the North American tempeh [and tofu] market. In: Sudarmadji, Suparmo and Raharjo, eds. 1997. Reinventing the Hidden Miracle of Tempe: Proceedings, International Tempe Symposium, July 13-15 1997, Bali, Indonesia. Jakarta, Indonesia: Indonesian Tempe Foundation. xi + 280 p. See p. 28-35. 26 cm. [7 ref]
• ***Summary:*** Contents: Abstract. History of the North American tempeh market. Current US tempeh market–May 1997: Basic statistics, who is the typical tempeh consumer?, where is tempeh sold?, how is tempeh packaged?, how is tempeh used by the consumer in North America?, what is the future of tempeh in North America?, factors that affect future growth of tempeh (health benefits of soy and label claims, consumer education, development of the food service and industrial market, development of Indonesian cuisine and restaurants in America).

In 1984 some 53 companies in the US made approximately 34,000 pounds/week of tempeh. At that time tempeh was the fastest growing soy product in the US, growing by about 28% a year.

As of May 1997 there are ten tempeh manufacturers in the USA; seven of these produce more than 1,000 lb/week of tempeh, and only one produces less than 200 lb/week. All ten US companies make an estimated 55,580 lb/week of tempeh, and these 7 largest companies make about 95% of the total. Canada has only 3 tempeh makers and they produce a total of about 1,100 lb/week. In Mexico, there are only a few tempeh makers, mostly in tourist areas. All of the 7 largest US and the 3 largest Canadian tempeh manufacturers are owned and operated by Caucasians. Caucasians also consume an estimated 95% of the tempeh made in the USA. In North America, tempeh is marketed in a variety of forms and flavors, of which soy tempeh is the most popular, followed by tempeh burgers and soy & grain tempehs. All of the existing tofu shops in the USA and Canada trace their roots to The Farm, a spiritual community in Summertown, Tennessee.

By contrast, tofu is much more popular in North America than tempeh. More than 70 manufacturers produce over 1.5 million lb/week. Three of the four largest manufacturers are owned and operated by Asian Americans. Whereas 75% of all Americans know what tofu is, only 14% know what tempeh is.

Although tempeh sales grew very rapidly during the 5-year period from 1980 to 1984, they were stagnant during the next five years, from 1985 to 1989. This was caused in large part by competition from more sophisticated meatless

burgers, such as the Gardenburger, launched in March 1985 by Wholesome & Hearty Foods of Portland, Oregon. Also microwavable and ready-to-eat foods became more popular. The period of stagnant sales led to a great consolidation within the industry. By 1990 there was renewed interest in tempeh, which paralleled the new interest in the health benefits of soy, and the rise new "meat alternatives" category. Today, tempeh sales are growing at 10-20% a year. And most Americans still like tempeh very much when they taste it. All US tempeh makers agree that education is the crucial need.

In 1984 about 20% of US tempeh was sold vacuum packed, compared with 70% today. Main advantage of vacuum packing: Longer shelf life. Main disadvantage: Imparts a somewhat bitter taste to the tempeh. A 1992 survey of 400 tempeh users by Turtle Island showed that the number one use was in stir-fried recipes, usually with rice and vegetables.

Tables show: (1) Tempeh market statistics (USA): Average retail price per 8 oz cake of soy tempeh: $1.81. Percentage of tempeh sold refrigerated: 80% (the rest is sold frozen). Total retail dollars spent on tempeh: In 1983 = $4.96 million. In 1996 = $13.15 million. Spent (retail) on tofu in 1996 = $116 million. Spent (retail) on soymilk 1996 = $100 million. Market share of the four largest tempeh makers in 1983: 63%, In 1997: 84%. (2) Number of brands of different types of tempeh on the US market in May 1997: Tempeh burgers 14, soy tempeh 9, multi-grain (mostly 3 or 5 grains) 6, bulk soy tempeh 5, soy & brown rice tempeh 4, sea veggie tempeh 3, wild rice tempeh 2, soy millet tempeh 2, sloppy Joe tempeh 2, other 8.

Talk with Seth Tibbott of Turtle Island. 1999. Dec. 6. The existing tempeh companies with the strongest ties to The Farm in Tennessee are (1) Lightlife Foods (Michael Cohen; see Sept. 1991 interview) and (2) Turtle Island (Seth; in 1977 he learned how to make tempeh at The Farm in Tennessee). Those with weaker ties are (3) Wildwood Natural Foods (Jeremiah Ridenour; he lived at The Farm for a while, has a lot of Farm history, and one of his kids was born on The Farm), (4) White Wave (In about 1980 Alexander Lyon was hitchhiking through Boulder, Colorado, and had no money. He taught Steve Demos how to make starter culture for something like $20 and a good meal), and (5) Surata Soyfoods (Benjamin Hills learned how to make tempeh from his former wife, who learned it from The Farm in Tennessee).

Turtle Island now makes tempeh for: Lean Green Foods (Hawaii; Benjamin Hills), Wildwood Natural Foods, and Quong Hop. It starts out when you're at a trade show and "people saddle up to you" and say "Uh, we're not sure exactly which way we're going with our tempeh, but do you any extra plant capacity? It's just a thought." Then "If you give any kind of encouragement to them, the next week they're begging you on their hands and knees, they'll pay anything to have you make it for them. It's such a hassle and they have to devote plant space to it. Tofu is now growing so much faster than tempeh, they just keep tempeh to fill out their product line." Seth expects that White Wave and Surata will come to him next, begging him to make tempeh for them. Address: Turtle Island Foods, Inc., P.O. Box 176, Hood River, Oregon 97031.

2476. Suzanne, Lavoie. 1997. Update on the *Canadian Soyfoods Directory* (Interview). *SoyaScan Notes.* Dec. 15. Conducted by William Shurtleff of Soyfoods Center. [1 ref]
• ***Summary:*** Approximately 3,500 copies of this directory were sent to Registered Dietitians (members of the Dietitians Association of Canada) across Canada and the response has been remarkable; the phones at the Ontario Soybean Growers' Marketing Board have been ringing all day recently. The total cost of the project, including the company visits, printing the directory, etc. was $69,000. It cost an additional $6,000 (roughly) for them to do the mailing (in house), including postage and envelopes, to the dietitians, plus almost 2,000 to Canadian companies, associations, etc. Most of the rest were given to OSGMB.

Suzanne has the date that each of the companies listed in the directory started making soyfoods. She may include that date in the next edition.

She also has information on which companies are soyfoods manufacturers and which are not–but rather buy their soyfoods from manufacturers then market or distribute the product under their own brand. Some companies that were marketer/distributors felt very strongly that did not want readers of the directory to know they were not manufacturers.

The information in this directory is also available on a CD-ROM using the database software named Access.

Suzanne hopes that her group's next project will be to put this directory on the World Wide Web.

Update: Talk with Suzanne. 1998. Feb. 17. They are now trying to put the directory on the Internet. OSGMB is very happy with the response; so far they have received more than 500 additional requests for the directory. It now looks as is if Suzanne's group will publish a new, updated directory every three years. Whenever she travels in Canada nowadays, she is very interested to visit stores and look for new soy products. Address: College d'Alfred–Formation/ soya, CBTS–Client Based Training, C.P. 580, 31 St. Paul, Alfred, Ontario K0B 1A0, Canada. Phone: 613-679-2432.

2477. Gupta, Rajendra P. 1997. Continuous soaking system. *U.S. Patent* 5,699,726. Dec. 23. 4 p. Application filed 17 June 1996. 2 drawings. [1 ref]
Address: 9 Veery Lane, Ottawa, ONT, K1J 8X4 Canada. Phone: 613-745-9115 or 613-744-4401.

2478. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada).*1997. Canadian Soyfoods Directory released. 11(3):2. Dec.
• ***Summary:*** "Following numerous requests from consumers, processors and health professionals, the Ontario Soybean Growers' undertook this extensive project." For more information visit www.soybean.on.ca, or fax the OSG at 519352-8983.

2479. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada).*1997. CBOT to drop bushel. 11(3):2. Dec.
• ***Summary:*** "From the beginning of 1998, prices for soybean, corn and wheat futures at the Chicago Board of Trade (CBOT) will be quoted in dollars per contract rather than in dollars per bushel, changing a practice that has been in existence for more than 100 years. Each CBOT contract for soybeans, corn and wheat is presently 5,000 bushels and the size of the contract will not be changed. CBOT members voted overwhelmingly last July to approve the proposal."

2480. *Canadian Export Soybeans (OSGMB, Chatham, Ontario, Canada).*1997. Mission to Europe. 11(3):1-2. Dec.
• ***Summary:*** Tom Lassaline and Kim Cooper traveled throughout Europe in Oct. 1997. "Their visit to Norway, Germany, the Netherlands Belgium, and Switzerland was mainly in response to requests from Canadian embassies in these countries. Overseas customers had made requests to embassy officials, asking for clarification and information on the Canadian soybean situation this year, especially as it relates to genetically modified (GMO) soybeans.

"The introduction of GMO soybeans into Europe in 1997 caused quite a stir. Environmental groups, such as Greenpeace, hold a very high credibility rating with many European consumers," but it varies by country. In Germany, for example, "Greenpeace has a 70% credibility rating, compared with 30% for the [soybean] industry." "Many companies in Europe are in a very awkward position. They generally are in favour of biotechnology, as long as it is safe for food and the environment." Consumers tend to support environmental groups, which are mostly opposed to this new technology.

2481. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada).*1997. Japan technical mission–September, 1997. 3(3):1-2. Dec.
• ***Summary:*** Tofu: Before the team of three professionals (representing industry, university, and government) left Canada, a series of questions concerning the different techniques and methods used in making tofu in Japan were submitted to the Science and Technology Section of the Canadian Embassy in Tokyo. These were sent to as many tofu manufacturers and researchers as possible in the hope of arriving at a consensus of opinion on the best way to make tofu. This Bulletin discusses times and temperatures for soaking the soybeans, water uptake, desired characteristics of the soymilk used to make tofu (percent solids, protein, fat, and sugar content, nitrogen, pH, and color), coagulants, times and temperatures in the coagulation process.

A sidebar titled "The GMO question" (p. 2) states: "If a common concern was established at all points of contact on the mission, it was the one concerning transgenics or Genetically Modified Organisms (GMO). The Japanese concern over this issue is one of the greatest to face the food production industry." According to Dr. Yukio Kawamura, a major reason for this aversion arises from the fact that "because Japan was the only nation to suffer from an atomic bomb, the people fear the effects of mutation from non-natural sources... Even though several departments of the Japanese government have OK'd the use of GMO in the food supply, there is a strong resistance to them... Mr. Ozawa, President of Fujishoji [Fuji Shoji], said that being able to label products as GMO-free will be as popular as those products who currently advertise that only organically grown beans are used in their manufacture. Wherever the team visited, this was the foremost topic of conversation. The Japanese are currently seeking a written documentation to accompany shipments stating that they are GMO free. Even though acceptance may be forthcoming in the future, this is a unique opportunity to protect and possibly increase market share in Japan."

2482. Duffey, Patrick. 1997. The power of cooperation: Members and rural communities benefit from AGP operations. *Rural Cooperatives.* Nov/Dec. p. 22-25.
• ***Summary:*** AGP, a cooperative based in Omaha, Nebraska, "is helping to boost the overall economy in the rural Midwest. AGP has become a classic example of the power of cooperation, with sales that topped $2.9 billion for fiscal 1997 and net earnings (before taxes) of $40.4 million. That's up from total sales of $896 million and net earnings of $4 million in its first year of operation [1983]. During its 14-year history, AGP has returned nearly $240 million in cash patronage to its members." In Oct. 1996 [sic, 1997] AGP's new soybean crushing plant in Emmetsburg, Iowa, began operations, and now consumes 60,000 bushels of soybeans a day, the equivalent of 1,500 acres of soybeans daily. It has just completed a soy oil refinery in Eagle Grove, Iowa, and is in the design phase of a new soybean processing plant in Hastings, Nebraska. "Today, its membership includes 302 local and 12 regional cooperatives representing 300,000 farmers from 16 states and Canada. 'Partners in food production,' is AGP's motto." AGP also exports grain and soybean meal to 20 foreign nations. Address: Information Specialist, USDA Rural Development.

2483. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Marketing news–Mission to Hong Kong and China. Dec. p. 5.
• ***Summary:*** Three Canadians visited these two areas in Sept. 1997 and have submitted a full report. The greatest potential for Canadian soybeans in this huge market is currently in southern China, where crushers near the China-Hong Kong border have learned of the superior quality of Canadian soybeans from their buyers in Hong Kong and are eager to try them. "The difficulties that they are now facing with their current soybean supply, from the soybean production regions of northern China, are a lack of consistent supply and questionable quality. The September mission focused mainly on the Guangzhou, Shanghai, Beijing and northern Heilongjiang areas of China." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2484. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Ontario soybean crush continues to increase. Dec. p. 5.
• ***Summary:*** The soybean crush has increased from 1,040,000 tonnes in crop year 1992/93 (Sept. 1 to Aug. 31) to 1,451,700 tonnes in 1996/97. Source: Canadian Oilseed Processors' Association. The biggest annual percentage increases were in 1996/97 (15.9%) and 1995/96 (11.6%). "The two large crushers in Ontario, ADM and CanAmera, have recently increased their crush capacity and oil/meal production. Ontario's four other crushers, Cold Spring Farms, Dennis Jackson Seeds, Helin Oil Packers, and Sunfield Oilseeds, also continue to expand." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2485. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Profiles: La Cooperative de Pointe-aux-Roches–also known as Stoney Point Co-op. Dec. p. 10.
• ***Summary:*** This co-op, established almost 50 years ago–in 1948, has seven elevator locations and handles about 7 million bushels of oilseeds and grains a year; of this roughly 40% is soybeans. The majority of these go to the ADM crush plant in Windsor, "but sales of food-grade export soybeans are climbing rapidly and account for about one third of all sales, both in bags through a half-dozen Canadian exporters and in bulk via CP Rail to the Farmers Grain Dealers Inc. terminal at Mobile, Alabama.

"Today, the Co-op has 940 members and annual sales of $56 million." A photo shows Chuck Desmarais, the Co-op's manager. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2486. *Ontario Soybean Growers' Marketing Board Newsletter.*1997. Focus on China. Dec. p. 11-12.
• ***Summary:*** Contains many separate, interesting facts on the following subjects: The People's Republic of China. Heilongjiang (HJ) province. Agricultural practice in Heilongjiang province.

In 1996 HJ province produced 4.13 million tonnes of soybeans, accounting for about 40% of China's total soybean production. The average yield is 28 bu/acre (1.9 tonnes/ha). Production is expanding due to high world prices and production incentives. "There have been some difficulties bringing North American soybean varieties into China for research purposes, as a result of concern over GMO (genetically modified organism) soybeans.

"The average farmer is required to sell 20% of his crop at a fixed price to the government, while the remaining 80% is available for the farmer to sell in the free market at the going price. Farmers do not like selling to the government because the price is lower. Low prices are responsible for more farmers choosing to move into the cities or seek an alternative job, asking others to run their farms for them." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2487. **Product Name:** Real Roasted Soys [Honey Coated, Organic Salted, Organic Unsalted, and Organic Salt and Garlic].
**Manufacturer's Name:** Dyshar Farms Ltd.
**Manufacturer's Address:** R.R. #3, Woodstock, ONT N4S 7V7, Canada. Phone: 519-537-2199.
**Date of Introduction:** 1997.
**Ingredients:** Organic soybeans, salt and/or garlic.
**Wt/Vol., Packaging, Price:** 100 gm, 1 kg, or 15 kg plastic bags.
**How Stored:** Shelf stable.
**New Product–Documentation:** Talk with Sharon Hart, co-founder and co-owner of Dyshar Farms. 1999. April 20. In 1997 they introduced honey coated plus organic Roasted Soys in three flavors.

2488. Millar, W.J. 1997. Use of alternative health care practitioners by Canadians. *Canadian J. of Public Health* 88:154-58. *

2489. Voldeng, H.D.; Cober, E.R.; Hume, D.J.; Gillard, G.; Morrison, M.J. 1997. Fifty eight years of genetic improvement of short season soybean cultivars in Canada. *Crop Science* 37:428-31.
Address: Agriculture Canada, Central Experimental Farm (CEF), Building #110, Ottawa, ONT K1A 0C6, Canada.

2490. Elovson, Rune. 1997. Algot Holmberg & Söner AB [Algot Holmberg & Sons Inc.]. In: Gösta Olsson, ed. 1997. *Den svenska växtförädlingens historia. Jordbruksväxternas utveckling sedan 1880-talet.* Stockholm: Kungl. Skogs- och lantbruksakad 320 p. See p. 81-84. Illust. 25 cm. [5 ref. Swe]
• ***Summary:*** This history of plant breeding in Sweden contains a chapter about the work of Sven Holmberg and his

father, Algot Holmberg, founder of the company Algot Holmberg & Söner AB.

The seed company Algot Holmberg and Sons at Fiskeby in Norrköping was by far one of Sweden's oldest in its category, and its roots go back as far as 1822 when Per Holmberg established a small country store in Norrköping. Eventually, it was taken over by his son P.J.A. Holmberg. However, it was his grandson Algot Holmberg from which the company got its name who upon his return from studies abroad gave the company its modern direction. From 1891, the company specialized entirely on producing and selling seeds and, in the beginning, the preservation and cultivation of local varieties and stocks from Östergötland and other parts of central Sweden, especially forage roots and leguminous plants. Eventually, the cultivation of potatoes and oil- and protein- yielding plants such as mustard, flax seed, sweet 'lupine' and above all soybeans was incorporated. Fairly soon the breeding of grains was also added.

After the death of Algot Holmberg in 1927 his work was continued by his sons Pehr A. and Sven A. Holmberg and the company's name was changed to Algot Holmberg and Sons Inc. Pehr A. Holmberg was the head of the company while Sven A. Holmberg was responsible for the breeding business.

In 1925 a close cooperation was initiated with the Danish breeding company Pajbjergfonden which would continue to exist for more than 40 years (Seed, 1965). The purpose of the breeding business at Fiskeby was primarily to produce varieties that were satisfactory to central Sweden's demands for gestation and cultivation dependability. The varieties from Pajbjergfonden would then render the business access also to varieties that suited the breeding demands of southern Sweden. The cooperation also meant that crossings performed at Holmberg's or Pajbjergfonden became the subject of choice at both of these breeding stations. At that time, the breeding expert at Pajbjergfonden, Henrik Bogh, periodically stayed at Fiskeby for this purpose.

During a period of time Professor Heribert-Nilsson was linked to the breeding business at Algot Holmberg and Sons, primarily for working with rye.

The demand for increased rationalization and to meet the mounting costs of breeding resulted in the sale of Algot Holmberg and Sons Seed and Breeding Company, including all the breeding material to W. Weibull and Company in 1966 (Weibullsholm, 1970). The buildings with the warehouses at Fiskeby outside of Norrköping, well known to all railroad travelers between Malmö and Stockholm, were sold to Fiskeby Bruk. The breeding of soybeans, however, continued under the administration of Weibull in the same place in localities rented by Fiskeby Bruk until 1984 at which time the lease expired (the warehouses were to be demolished), and the soybean breeding moved to Landskrona.

Breeding Results: In the beginning the greatest success was achieved in the root category and the first result was the 'Göta Turnip' which has its origin in the 'Östgöta Turnip', already grown in gardens for many years. Among other things it had good resistance against club root of cabbages disease. Thereafter, the focus was more on fodder beets and above all fodder sugar beets which were represented primarily by the varieties Svea Barres and Milka, respectively. The focus was especially aimed at raising the proportion of the total solids in the beets.

Of the leguminous plant Götaklöver is worth mentioning. It is a late common purple clover and one of the first bred clover families that has been released in Sweden (commissioned by the agricultural scientist Gösta Eriksson who during one period worked for the Holmberg company). Furthermore, the intermediate common purple clover Monark and the common white clover Milka from Pajbjergfonden were also introduced.

The work with potatoes resulted in a local varieties for Östergötland, Östergyllend which was commonly liked as potatoes for human consumption ("A few words about Algot Holmbergs Seed Breeding").

In the grain category one can largely depend on the varieties from Pajbjergfonden. The primary varieties were the spring barley varieties Kungs and Kron and the oats varieties Rex. The barley varieties were among other things known for their resistance to nematode. Certain success can be shown regarding Holmberg's wheat breeding which among other things was crossed with Finish material with the intention of developing early varieties with good resilience and resistance against spike germination. The spring wheat varieties 'Algot' was approved and incorporated into the Swedish list of varieties in 1969. It was a very early and on the whole a well balanced spring wheat varieties. But it was soon exceeded in yield by newer varieties and therefore never marketed. By and large the wheat material was taken over by and incorporated into Weibulls.

The breeding of soybeans: Since 1939 the operation at Holmberg's in Norrköping has largely consisted of the soybean breeding, and without doubt this operation has made the name Holmberg known, especially internationally. It was Sven Holmberg who initially got the idea of adapting the soybean to the Swedish climate. After having made several attempts with varieties mainly from Canada and Germany with poor results, in 1939-40 he made a journey for sample collections to northern Japan and Sakhalin in Eastern Siberia. These places have a summer climate similar to that of Sweden, and a long tradition of breeding soybeans. The basics for this type of soybeans which was developed by Sven Holmberg (Holmberg, 1946, 1973) consisted of crossings between early, hardy and low

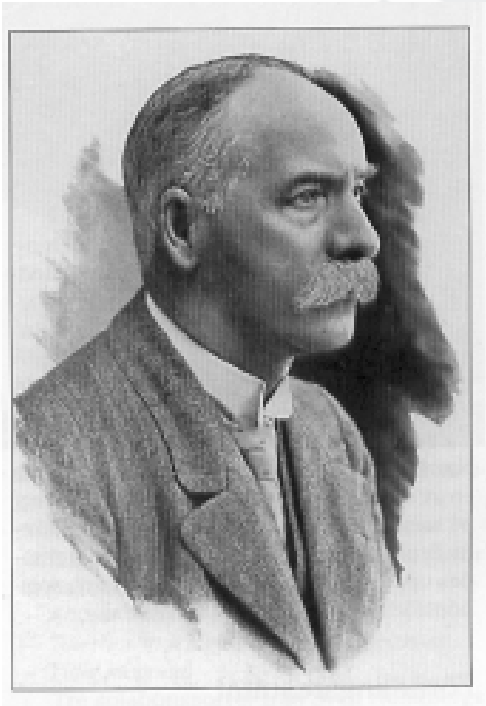
growing varieties from these parts, and more higher growing varieties, mainly from Germany (with its origin from Manchuria).

There are primarily three characteristics that distinguish the soybean varieties from Holmberg's breeding and that are entirely essential to the adaptation to the Swedish climate: (1) Adaptation to long-day-climate. (2) Tolerance against low summer temperatures. (3) Early ripening. Three varieties of soybeans from Sven Holmberg's breeding are or have been incorporated into the Swedish list of varieties, Fiskeby V, Bråvalla and Träff. Fiskeby V is the highest yielding and the tallest. It is also the most well known varieties, viewed internationally. Bråvalla and Träff are short and extremely early varieties. They ripen 8 and 12 days, respectively, earlier than Fiskeby V. / In spite of the breeding success, the soybean never attained common cultivation in Sweden, primarily because its yield was low and uncertain in comparison with other crops. Even if the breeding efforts in this respect seemed to have failed, they have probably, on a global scale, attained great value considering the invested resources. The soybean varieties from Fiskeby are well known among soybean growers all over the world, consisting of a source for early gestation and tolerance against low temperatures in breeding programs, wherever these characteristics were needed.

The soybean breeding has now been discontinued and the breeding material is stored at Nodiska Genbanken (The Nordic Gene Bank).

For his achievements in plant breeding, Sven Holmberg was given several awards, among other things A. W. Bergsten's Award and a silver plaque from the Royal Academy of Forestry and Agriculture.

An illustration (portrait) shows: (1) Algot Holmberg (1856-1927), founder of the seed company.



Photos show: (1) Holmberg's Seed Cleaning Establishment and Warehouse next to the railroad tracks in Norrköping, Sweden.

(2) Sven Holmberg, Doctor of Agricultural Science, holding out a bundle of soybean plants. He made significant contributions as breeder of soybeans through producing extremely early varieties. (3) Three soybean plants, shown with a playing card to indicate their size, against a white background. The short plant to the right is a primitive but early country varieties (Aojiro Gokuwase) of soy from Hokkaido. The tall plants to the left have been chosen from one of the first crossings (St. K7 / 38 x Aojiro Gokuwase) at Fiskeby.

The last three references are:

(3) Some words about Algot Holmberg's Seed Breeding. Publication by Algot Holmberg och Söner AB (Undated).

(4) Seed. 1965, Cooperation Holmberg-Pajbjerg 40 years. Algot Holmberg's Yearbook 1965, 3-4.

(5) Weibull, J. 1970. Weibullsholm 1870-1970. I: Weibullsholm 1870-1970. Anniversary Publication by Jörgen Weibull. Landskrona, p. 7-49.

Note: The photos of figures 1, 2 and 3 were supplied by Kerstin Wellving, Svalöv. Address: Sweden.

2491. Food and Agricultural Organization of the United Nations. 1997. Soybeans: Area harvested, yield, and production. *FAO Yearbook–Production (Rome, Italy)* 51:102-03.
• ***Summary:*** The 1997 Production Yearbook, under "Soybeans" (p. 102-03, in English, French, and Spanish) gives area harvested (1,000 ha), yield (kg/ha), and production (1,000 MT), each for the years 1989-91, 1995, 1996, 1997, for the following places: World. Africa: Benin, Burkina Faso, Burundi, Congo–Democratic Republic, Cote d'Ivoire, Egypt, Ethiopia PDR, Ethiopia, Gabon, Liberia, Morocco, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zambia, Zimbabwe.

North and Central America: Canada, El Salvador, Guatemala, Honduras, Nicaragua, USA.

South America: Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru, Uruguay, Venezuela.

Asia (fmr = former). Asia: Azerbaijan, Bhutan, Cambodia, China, India, Indonesia, Iran, Iraq, Japan, Kazakhstan, Korea–Democratic People's Republic of (north), Korea–Republic of (south), Laos, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Syria, Thailand, Turkey, Viet Nam (Vietnam).

Europe (former). Europe. Albania, Austria, Bosnia Herzegovina, Bulgaria, Croatia, Czechoslovakia, Czech Republic, France, Germany, Greece, Hungary, Italy, Latvia, Moldova Republic, Romania, Russian Federation, Slovakia, Spain, Switzerland, Ukraine, Yugoslav SFR, Yugoslavia.

Oceania. Australia.

USSR.

2492. Grace, Eric S. 1997. Biotechnology unzipped: Promises and realities. Washington, DC: Joseph Henry Press. 248 p. Illust. Index. 22 cm. [31 ref]
• ***Summary:*** This is a well-written, fair and balanced treatment of a complex and controversial subject. Chapter 1 contains a good history of the development of biotechnology. Contents: Preface. 1. How biotechnology came about: What is biotechnology?, in the beginning, the voyager and the monk (a striking coincidence–Alfred Russel Wallace and Charles Darwin), colored bodies (fruit flies in the lab), let there be DNA, unraveling the double helix, how does DNA store information?, a copy in every cell, what do genes do?, protein primer (examples of proteins, proteins are us, the amino acids, genes, proteins, and your eyes), the genetic code (nature the expert packer), how genes make proteins, daring nucleotide adventures.

2. Tools in the genetic engineering workshop: Why bacteria?, hijackers and molecule snippers, first catch your DNA, making recombinant DNA, putting new genes into cells, gene expression, cloning plants, animals, and cells, monoclonal antibodies, DNA probes, DNA "fingerprinting", polymerase chain reaction.

3. Biotechnology and the body: new parts for old, it's all in the genes, the beginnings of gene therapy, the human genome project, the continuing story of gene therapy, the human genome project, the continuing story of gene therapy, microbes in medicine, medicines from plants, the interferon story, genes and vaccines, nature's magic bullets, designer drugs, a case study: tryptophan, closing thoughts.

4. Biotechnology on the farm: Milking it for all it's worth, let us spray, developing regulations, great expectations, pests and diseases, a versatile bacterium, weather and soil, farmer-ceuticals?, closing thoughts.

5. Biotechnology and the environment: Microbes clean up, microbes as monitors, finding the right microbes for the job, a quick reading, microbes and mines, golden harvest, a new angle to landscaping, fighting chemicals with chemicals, making new fuels, closing thoughts.

6. Biotechnology in seas and trees: An ocean of opportunity, foul is fair, underwater drugs, a cornucopia of chemicals, research and development, fuels from the sea, farming the seas, diseases and pollutions, frozen fish, the forest and the trees, a harvest of wood, building better trees, forests of the future, closing thoughts.

7. Ethical issues: Making opinions, life, patenting people, problems with patents, profiting from the poor, protecting consumers, health dilemmas, gene therapy revisited, pros and cons of gene therapy, Prometheus revisited.

Postscript. Glossary. Further reading. Internet resources. Photo credits & sources.

Biotechnology is the transplanting of genes from one species into another.

Subjects discussed include: Deaths from tryptophan made in Japan by Showa Denko (p. 88-90). Monsanto Co. (p. 97, 102, 107). IPM (Integrated Pest Management, p. 108, 120-21). Dr. John Fagan (molecular biologist at Maharishi University in Iowa and author of the book: *Genetic engineering: the hazards, Vedic engineering: the solutions.* He is opposed to much of biotechnology). Address: Victoria, British Columbia, Canada.

2493. Grogan, Bryanna Clark. 1997. Twenty minutes to dinner: Quick, low-fat, low-calorie vegetarian meals. Summertown, Tennessee: The Book Publishing Co. 192 p. Index. 21 cm.
• ***Summary:*** This vegan cookbook contains a wealth of soy-related recipes. Also includes soy-free options for recipes with tofu and soymilk. Address: Denman Island, east of Vancouver, British Columbia, Canada.

2494. Hogan, David Gerard. 1997. Selling 'em by the sack: White Castle and the creation of American food. New York,

NY: New York University Press. x + 199 p. See p. 99, 100, 107. *

• ***Summary:*** White Castle, a regional restaurant chain, was founded in 1921 in Wichita, Kansas–at a time when Americans were hesitant to eat ground beef after Upton Sinclair's 1906 novel *The Jungle* had publicized the poor sanitation practices of the meat packing industry. It became the first American hamburger fast food restaurant chain.

In the chapter "White Castle goes to war," the section titled "Victory coffee without the coffee" (p. 98-100) states that coffee was in short supply during World War II only because consumers, in the early summer of 1942, fearing it would be rationed, "fulfilled their own prophecy of scarcity by clearing grocery shelves and hoarding coffee in their cupboards." Rationing was imposed a few months later.

White Castle first considered extending the existing coffee supply by adding "chicory or soy meal." Eventually most wholesale roasters added 6-8% chicory to their mix, which did not alter the flavor much. White Castle soon accepted this "chicoried" coffee at most Castles in the chain.

They also tried a variety of other hot drinks to help make up the coffee shortage, such as Postum (an extract from roasted bran flavored with molasses)–but it was quite expensive.

White Castle also considered and tested, but ultimately rejected, other coffee substitutes such as "Soykee, a soy derivative sold by Battle Creek Food Company; Soyfee from Cubbison Company; and Kofy Sub, another soy-based substitute" [made by Dr. Jackson Foods in Toronto, Ontario, Canada]. The only coffee substitute that White Castle considered seriously was Breakfast Cup, sold by Loma Linda Foods of California in 12-ounce packages; it was made from soy, bran, fig, wheat, and honey, but was eventually considered too expensive.

Since meat was also scarce during the war, White Castle also searched for alternatives to their hamburgers–and even considered meatless alternatives. Battle Creek Foods of Michigan offered the most varieties. Special Foods of Columbus [sic, Worthington] Ohio, made Numete, based on peanuts and corn flour. Many companies made a soy burger, while Loma Linda Foods made Vegelona (from soybeans, tomatoes, onions, and peanuts) and Proteena (from soy, tomato juice and yeast extract). Central Soya Co. made soya flour, which White Castle considered using as a meat extender. But there is no evidence that White Castle ever mixed its hamburger meat with any extender.

2495. Main, Jan. 1997. Bone vivant!: calcium-enhanced recipes and bone-building exercises. Canada: Macmillan Canada. 192 p. + 8 unnumbered pages of plates. Illust. 25 cm. *

• ***Summary:*** This high-calcium diet contains soy recipes to help prevent osteoporosis. Address: Professional home economist, Scarborough, Ontario, Canada.

2496. Loh, Michael. 1998. Current activities (Interview). *SoyaScan Notes.* Jan. 20. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Michael received an attractive retirement package from the Canadian government. He was on loan from the government to OSGMB, but has retired. Now he is working for a new company named Southwest Soya, which is the marketing arm of Southwest Seed. The latter is a group of three seed companies which have about 10% of the Canadian market: Mergl Seeds, Shanks Seeds, and Von Martels. They do not yet have a program or policy concerning GMO. Southwest Seed is a member of the Canadian Soybean Export Association (CSEA).

2497. Bernard, R.L.; Cremeens, C.R.; Cooper, R.L.; Collins, F.I.; Krober, O.A.; Athow, K.L.; Lavoilette, F.A.; Coble, C.J.; Nelson, R.L. 1998. Evaluation of the USDA soybean germplasm collection: Maturity groups 000 to IV (FC 01.547 to PI 266.807). *USDA Technical Bulletin* No. 1844. iii + 169 p. Jan.

• ***Summary:*** Contents: Introduction. About the tables. List of tables: Maturity groups 000 to 0: Tables (1.0) Identification and origin information for USDA soybean germplasm in maturity groups 000 to 0, FC 01.547 to PI 266,807: PI Number, accession name, country of acquisition, country of origin, year introduced or released, maturity group. (2.0) Descriptive data for USDA soybean germplasm in maturity groups 000 to 0, FC 01.547 to PI 266,807: Entry (variety name, FC number, or PI number), maturity group, stem termination (determinate, indeterminate, semi-determinate), flower color, pubescence (color, form, density), pod color, seedcoat (luster, color {buff, black, black hilum with brown outer ring, brown, gray, green, greenish brown, imperfect black, reddish brown, tan, yellow}), hilum color (same choices as seed color), other traits (seed, leaf, plant). (3.0) Agronomic data for USDA soybean germplasm in maturity groups 000 to 0, FC 01.547 to PI 266,807, grown at St. Paul, Minnesota: Entry, flowering (days after May 31), maturity (days after May 31), lodging (score), height (cm), stem termination score, shattering score, seed (quality score, weight {100 gm/seed}, yield {1000 kg/ha at 13% moisture}). (4.0) Seed composition data for USDA soybean germplasm in maturity groups 000 to 0, FC 01.547 to PI 266,807, grown at St. Paul, Minnesota: Entry, maturity group, seed composition (oil %, protein %), protein composition (methionine as a percentage of total protein), oil composition [fatty acids] (linoleic %, linolenic %).

Maturity groups I and II: The tables are identical in format to those above except that the soybeans were grown at Urbana, Illinois, and there is information on disease reaction to phytophthora rot and pythium rot.

Maturity groups III and IV: The tables are identical in format to those above except that the soybeans were grown at Urbana, Illinois, and there is information on disease reaction to phytophthora rot and pythium rot.

"Introduction: This publication consolidates information contained in U.S. Regional Soybean Laboratory Manuals 223 (July 1965), 230 (September 1966) and 238 (April 1969) on the origin, descriptive characteristics, agronomic performance, seed composition and disease reaction data of soybean *(Glycine max* (L.) Merrill) germplasm accessions FC 01.547 to PI 266.807 in maturity groups 000 through IV. Also included are cultivars, in these same maturity groups, developed at public institutions in the United States and Canada, and released by 1966. The data presented in Tables 3 and 4 are the same as in the original publications except that units on weight and height have been changed to metric and some maturity groups have been changed. In Table 1, some changes have been made for accession name and country of origin based on more recent information. The pedigrees of domestic cultivars are not included but are available in USDA Technical Bulletin 1746. Some origin details for named cultivars and FC accessions were removed but are available in the USDA Soybean Germplasm Collection Inventory, Volume 1, INTSOY Series Number 30. In Table 2, data on stem termination was added, the information on pubescence was expanded and some descriptions have been updated. These data can also be obtained through the Germplasm Resources Information Network (GRIN), Database Management Unit, USDA-ARS, BARC West, Beltsville, Maryland 20705. Evaluation publications for PI numbers higher than PI 266.807 can be obtained from the Curator, USDA Soybean Germplasm Collection, USDA-ARS, 1101 West Peabody Drive, University of Illinois, Urbana, IL 61801."

Named varieties in maturity groups 000 to 0: Acme, Agate, Capital, Comet, Crest, Early White Eyebrow, Flambeau, Goldsoy, Grant, Hardome, Hidatsa, Kabott, Mandarin (Ottawa), Manitoba Brown, Merit, Minsoy, Norchief, Ogemaw, Pagoda, Pando, Poland Yellow, Sioux.

Named varieties in maturity groups I and II: Aksarben, Amsoy, Bansei, Black Eyebrow, Blackhawk, Burwell, Cayuga, Chippewa, Chippewa 64, Earlyana, Elton, Etum, Funman, Giant Green, Goku, Habaro, Hakote, Harly, Harosoy, Harosoy 63, Hawkeye, Hawkeye 63, Henry, Hoosier, Kagon, Kanro, Kanum, Korean, Lindarin, Lindarin 63, Linman 533, Manchu 3, Manchu 606, Manchu [Madison], Manchu Hudson, Manchu Montreal [Montreal Manchu], Manchukota, Manchuria, Mandarin, Mandarin 507, Medium Green, Mendota, Monroe, Mukden, Norsoy, OAC 211, Ontario, Portugal, Renville, Richland, Sac, Seneca, Sousei, Soysota, Tastee, Toku, Tortoise Egg, Waseda, Wea, Wisconsin Black, Yellow Marvel.

Named varieties in maturity groups III and IV: A.K. (Harrow), A.K. [FC 30761], A.K. (Kansas), Adams, Adelphia, Aoda, Bethel, Boone, Chestnut, Chief, Chusei, Clark, Clark 63, Cloud, Columbia, Delmar, Dunfield, Ebony, Emperor, Ford, Fuji, Funk Delicious, Gibson, Granger, Green and Black, Guelph, Harbinsoy, Harman, Higan, Hokkaido, Hongkong, Hurrelbrink, Illington, Illini, Ilsoy, Imperial, Jefferson, Jogun, Kanrich, Kent, Kim, Kingston, Kingwa, Kura, Lincoln, Macoupin, Manchu, Manchu 2204, Manchu [Lafayette], Manchuria 13177, Manchuria 20173 Mandell, Mansoy, Midwest, Mingo, Morse, Norredo, Osaya, Patoka, Patterson, Peking, Pennsoy, Perry, Ross, Sanga, Sato, Scioto, Scott, Shelby, Shingto, Shiro, Sooty, Viking, Virginia, Wabash, Wayne, Wilson, Wilson-Five, Wing Jet (Ohio), Wolverine. Address: 1. Prof. Emeritus, Dep. of Agronomy, Univ. of Illinois, Urbana; 2. USDA-ARS agricultural research technician; 3. Research Geneticist, USDA-ARS, Dep. of Agronomy, Ohio State Univ., Wooster.

2498. Golbitz, Peter. 1998. Tofu & soyfoods cookery: Delicious foods for a healthy life. Summertown, Tennessee: Book Publishing Co. 176 p. Illust. (3 photos). Recipe index. General index. 21 cm.

• ***Summary:*** Contents: Preface and acknowledgments. The history of soyfoods. A closer look at soybeans. Soybeans and health: Introduction, malnutrition, cardiovascular disease, cancer, osteoporosis, menopause, more to come. Using soyfoods: Whole dry soybeans, tofu, soymilk, soy flour, textured soy protein, green vegetable soybeans, tempeh, miso, soy sauce, soy protein concentrate, soy protein isolates, natto, soybean oil, second generation soyfoods, meat alternatives, cheese alternatives, soy yogurt, nondairy frozen desserts, mayonnaise and dressings, instant soups and other dry mixes, margarine, lecithin, soynuts and soynut butter, soy sprouts, okara or soy pulp. Basic recipes. Breakfast. Bread. Salads & dressings. Soups & sandwiches. Main & side dishes. Desserts & drinks. Glossary. U.S. & Canadian soyfoods companies. Sources of information on soyfoods. Nutrients in soyfoods.

Contains 125 of Peter Golbitz's favorite recipes, selected from the works of some of "the world's leading soyfoods chefs." A list of these "leading vegetarian and soyfoods pioneers" (all of whose books have been published by The Book Publishing Co.) appears on the rear cover. Peter (born in 1952) lives with his wife, Sharyn Kingma, and son on a beautiful island the coast of northern Maine. A color photo of the family appears on the rear cover. Twenty years ago (in 1978) Peter was "first introduced to tofu and the wonders of soyfoods." A photo of Peter with his book appears in the Book Publishing Catalog of Jan. 1999. Address: President and Founder, Soyatech, Inc., Bar Harbor, Maine. Phone: 207-288-4969.

2499. Jones, Jacob. 1998. Three archival collections of David Fairchild's papers (Interview). *SoyaScan Notes.* Feb.

4. Conducted by William Shurtleff of Soyfoods Center. • ***Summary:*** David Fairchild was a remarkable and very influential man. In 1898 he founded the Section of Foreign Seed and Plant Introduction within the U.S. Department of Agriculture in order to centralize introduction activities. A visionary and a leader, he conducted many plant exploration trips and wrote extensively and lucidly, with an excellent historical sense. The biggest repository of his papers is in the Fairchild Tropical Garden in Coral Gables (southwest of southern Miami, just a few miles inland from Biscayne Bay), Florida, where there is a good archivist. Contact: Fairchild Tropical Garden, Research Center, Attn: Bertram Zuckerman (part-time volunteer historian), 11935 Old Cutler Road, Miami, Florida 33156. Phone: (305) 665-2844. Fairchild's papers are stored in five file cabinets, each 4-5 drawers. They have no inventory. About 4 miles away is Fairchild's former home, named The Kampong, in Coconut Grove. It is now a private residence but fully preserved, with a regular staff and a horticulturist. The original plant collections are still growing there. It is part of the National Tropical Botanical Garden Society headquartered in Kauai, Hawaii, and can be visited by special appointment. Talk with Bertram Zuckerman. 1998. Feb. 24. In one thin file is a short letter to Fairchild from Dr. A.A. Horvath, dated 1939. Horvath was a chemist at the Delaware Agricultural Experiment Station in Newark. He wrote that he was sending Fairchild a copy of his book, he had read Fairchild's book, and he was a friend of P.H. Dorsett.

The second biggest Fairchild collection is in Nova Scotia at Alexander Graham Bell's summer home. Fairchild married Bell's daughter. Contact: Aynsley McFarlane, Site Manager, Alexander Graham Bell National Historic Site, P.O. Box 159, Baddeck, Nova Scotia, Canada B0E 1B0. Phone: (902) 295-2069.

The third major repository is in the records of the Bureau of Plant Industry, recently relocated to the National Agricultural Library in Beltsville, Maryland.

Jacob adds: Fairchild started as a plant pathologist, which meant that he also had to study plant physiology. He studied in Europe, then later went to Java. In the late 1800s, the Americans were the leaders in plant pathology, while the Germans were the leaders in plant physiology. Address: Graduate student, Purdue Univ., P.O. Box 132, Lafayette, Indiana. Phone: 765-742-8530.

2500. Rose, Richard. 1998. New developments at Rella Good Cheese Co. (Interview). *SoyaScan Notes.* Feb. 16. Conducted by William Shurtleff of Soyfoods Center. • ***Summary:*** Richard renamed his company to Rella Good Cheese Co. in about Oct. 1997. Starting in Feb. of 1997, his company began enriching all of its cheese alternatives (except VeganRella) with a vitamin-mineral mix to make them nutritionally equal to dairy cheese. Consumers prefer enriched alternatives; it is not required.

To date, Richard's company has used its self-imposed "Green Tax" to give about $40,000 to environmental groups (EarthSave, Rainforest Action Network, etc.)–in addition to the more than $84,000 donated to the Second Harvest Food Bank. The largest single recipient group was EarthSave, but they are no longer a recipient. Right now the Hemp Industries Association is the major recipient among environmental groups. Remember that half the pesticides in the USA are used on cotton crops.

It is not very difficult to buy hemp seeds in the USA, but all of it is imported. Last year 1 million pounds was imported into the USA. You can order by phone from 1-800-buy-hemp. You can also buy it from bird stores, where it is used as bird feed. In addition, about 500,000 acres of feral / wild hemp (called "ditchweed") grow in the USA each year–mostly in the Midwest, but almost nobody harvests the seeds, since that is illegal. Since 1957 it has been illegal to cultivate hemp in the USA without a license. One group, the Research Inst. of Pharmaceutical Sciences, Univ. of Mississippi, has a license to grow hemp for the DEA (Drug Enforcement Administration) for the 7 patients the government gives 300 joints per month to.

The whole issue of decriminalizing drugs (including marijuana) is now being supported by a number of prominent public figures such as George Schultz (former Republican secretary of State), Milton Friedman (conservative Republican economist), a superior judge in Orange County, and the mayor of Baltimore, Maryland. They want to medicalize addiction. The Netherlands has decriminalized drugs and the results have been good.

So Richard's company imports its hemp seed from Germany; it is certified organic and dehulled. His is the first company to import dehulled seeds. Their flavor is delicious–like sunflower seeds. It is a complete protein and 65% of the protein is edestin–which is very high quality.

Trader Joe's now has its own brand of soy cheese, named Trader Joe's Soy Cheese in Jalapeño Jack flavor. For a while, Trader Joe's kicked TofuRella off their shelves. Then they had a big problem with a shipment of soy cheese from Soya Kaas, so they brought Richard's products back in–sheepishly.

The main ingredient in Richard's soy cheeses is actually spray-dried tofu. In Canada it must be shown as such on the label, but not in the United States. Richard has never been in the factory where his spray-dried tofu is made, but he has asked the owner point blank if they are coagulating it and they say they are. Nor does he have any statement in writing. They probably coagulate a large tank of soymilk with calcium sulfate (not GDL) to make it into thin silken tofu, then they slurry it and run it through a spray drier. At least three companies make tofu powder: Clofine Dairy & Food Products, Inc. (Linwood, New Jersey), SunRich Inc. (Hope, Minnesota), and Prosource, Inc. (Alexandria, Minnesota). Devansoy Farms, Inc. (Carroll,

Iowa; Elmer Schettler, president) makes soymilk powder, but not tofu powder.

In May 1997 Richard incorporated a new company named The Hemp Corporation (THC). There is some fall-out from anti-help people in the industry.

In the near future, he plans to transfer all existing hemp products (HempRella, Hempeh Burger) to THC, which does not yet have any products on the market. Three new hemp products for 1998 will be the HempNut (dehulled hemp seeds), a chocolate, and an aseptic hemp milk (a world's first; tests show there will be no problems with trans fatty acids, which sometimes form at high temperatures). He was on the Jay Leno show 3 times, where they did skits with his foods–the cheese and the chocolate. This was related to the name change to Rella Good Cheese Co. which will license the "Rella" trademark.

Richard also plans to change his environmental policy pretty soon to "All profits go to charity."

Richard is now exporting some of his cheese alternatives to Italy. VeganRella has been made under license in England for several years.

Concerning the cheese alternatives market, in 1996 (according to data from SPINS, which covers most major natural foods distributors except for Tree of Life), Richard's company was the leader in units sold, Soya Kaas No. 1 in dollar sales, and Galaxy was a distant third in the natural foods market (but Galaxy's main market is supermarkets). There are only three major players in this market. Richard does not have the statistics for 1997. Richard expects White Wave to be dropping their soy cheese soon. Originally Richard made White Wave's soy cheese. Then there were problems, it went to litigation; arbitration awarded Richard $45,000 several years ago. Now Soya Kaas makes White Wave's soy cheese.

"The soul of the natural foods industry is being co-opted quickly." One example is Whole Foods Market (WFM). Richard is getting fed-up with the lack of integrity in the industry. WFM recently yanked all the Rellas from all their stores nationwide because sorbic acid (a completely harmless mold retardant/inhibitor) appears on the label. Richard's competitors use sorbic acid (or calcium propionate) as a mold retardant but do not list it on the label. Moreover, WFM carries other products that contain sorbic acid–which they say are "exempted." So WFM punishes the people who are being honest, and at the same time promotes itself as being socially responsible, ethical, members of Social Venture Network, the honest retailer of foods in America. Address: President, Rella Good Cheese Co., P.O. Box 5020 (616 Davis St.), Santa Rosa, California 95402-5020. Phone: 707-576-7050.

2501. Tanaka, Wendy. 1998. The joy of soy: Consumer awareness of health benefits boosts Bay company [Vitasoy]. *San Francisco Examiner.* Feb. 17. p. C-1, C-2.

• ***Summary:*** Vitasoy USA Inc. "has become a powerhouse in the fast-growing soy foods industry." Yvonne Lo, president and CEO, worked as a city planner in Toronto (Ontario, Canada) before investing $10,000 to start the U.S. arm of her father's business in 1979. Company sales have grown at double-digit rates for the past 5 years, reaching an estimated $43 million for fiscal 1997. Today, the company's soy milk is the No. 2 brand in the USA, controlling 25% of the $150 million market (which has been growing at 10% a year since 1990), according to Soyatech Inc. Edensoy is first with 38% of the market.

Soyatech statistics show that U.S. tofu market sales have grown 5% a year for the last 5 years to $125 million a year last year.

The acquisition several years ago of Azumaya and Nasoya, two of America's largest tofu manufacturers, has made Vitasoy America's largest producer of tofu. Now Vitasoy is hoping to further increase its sales of tofu and soymilk with its $13.5 million state-of-the-art plant in Ayer, Massachusetts. Vitasoy can now deliver soymilk to retailers in 7-10 days, compared with 45-60 days during the years prior to fall 1997 when all of its soymilk was imported from Hong Kong. Moreover, the new plant will eventually have be able to produce 50% more soymilk than the company had been able to import. The plant at Ayer will also produce Nasoya brand tofu. "Vitasoy USA already has a tofu factory in China Basin [actually 1575 Burke Ave., San Francisco] to produce the Azumaya brand." Vitasoy now sells its products in mainstream retail markets such as Safeway, Lucky, Andronico's and Walmart. The vice president for produce merchandising at Walmart Superstores says they have had very good success with Vitasoy's tofu.

A color photo shows Yvonne Lo holding packages of Azumaya tofu and Vitasoy Light vanilla soymilk in front of pallets of product stacked 10 feet high at the company's Brisbane warehouse. Address: Examiner staff.

2502. Schweitzer, Peter. 1998. Plenty International (Interview). *SoyaScan Notes.* March 25. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Plenty International is now the official name of their organization. This is the named under which they are registered with the United Nations, Canadian International Development Agency, and other government organizations. But "it's a mouthful," so they usually call it just "Plenty" for short. In the past, however, Plenty has sometimes used two names at the same time. In about 1982-83, after the original Plenty split up, the U.S. half usually called itself Plenty USA vis a vis Plenty Canada. In early 1998 the Board officially changed the name to Plenty International, and the organization is incorporated under that name with the state of Tennessee. They had to re-do the by-laws.

There is now also a Plenty Spain in Barcelona started by a guy from Argentina who worked with Plenty in the

USA and Lesotho for many years. They do many projects but none of them are soy-related.

Bisi Iderabdullah, the founder and director of the Imani House project and soy program in Liberia, is currently in Brooklyn, New York, trying to raise grant money for her program in Liberia. Plenty recently sent their clinical director to Senegal for medical training. The work is ongoing, run by their local staff people, in Liberia, and Bisi plans to return soon.

Plenty Canada has gone through major changes. They moved their headquarters to an Indian reservation for a while and their whole board of directors was Native Canadian for a while. Peter is trying to find out what is going on; he has heard that some of the original people are now coming back into the organization.

Of Plenty's various soy projects around the world, the one in Guatemala is currently by far the most successful and active. The soy dairy is now on a solid financial footing, managed by Agostine and Elena Xoquic (pronounced cho-KEEK), who have been actively involved since about 1995. Amada del Valle, who worked with Plenty Canada and was close fields with Laurie, is no longer involved. Laurie has worked with both Plenty Canada and Plenty USA. The soy dairy is under the auspices of the *Comité de San Bartolo*, which is the village committee. They have struggled and hung in there during the difficult times, and now things are going much better. Their biggest market is the tourist restaurants in Panajachel and Antigua (Guatemala), but they do have 3-4 outlets in Guatemala City. They now have an outlet right on the village square in Solola, where they sell soy ice cream, tofu, and a soymilk popsicle that is very popular. Suzi and Peter went down to offer assistance in recent years. Plenty bought them a truck so they could start doing deliveries instead of riding buses with their buckets of tofu, and also helped them with some Spanish-language publications. Suzi did many soy demos in restaurants in Panajachel. Chuck Haren has been going there several times a year. Plenty has gotten them grants of roughly $10,000 a year so they could upgrade broken equipment and refrigeration. They have developed some new products, and they are now making tempeh. The ongoing outside help has been essential to their survival, but they have learned how to operate–though they are not that ambitious. Chuck believes they could be much more successful. He feels they have an unlimited market. They earn enough money to pay the staff and put some back into the village. They operate a little nutritional outreach program.

Peter notes that the work with soy has always been very prominent through the history of Plenty's activities worldwide. "It's always been a part of the programs that people seem to like. I see a really healthy future for it."

Plenty had one 3-year period when Chuck was really well funded, with about $50,000 from three public welfare foundations. New programs started in many places, including Liberia. Address: Executive Director, Plenty International, P.O. Box 394, Summertown, Tennesse 38483. Phone: 931-964-4864.

2503. Rose, Richard. 1998. New developments at Rella Good Cheese Co. (Interview). *SoyaScan Notes.* March 27. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** In the fall of 1997 Richard fired his national sales manager and his CEO (Janet Crolius, who was with the company two years). Galaxy Cheese Co. almost immediately hired the sales manager, then (according to Richard) they induced him to violate/breach two contracts he signed. Using the money he saved from paying salaries, Richard launched a large ad campaign featuring three ads: (1) A tie-dye ad with the slogan "When we first introduced tofu cheese, people said we must be smokin' something. Well, we are now," for hickory-smoked TofuRella, (2) The white mouse in a tree with the slogan "Experts prefer," and (3) "Not milk?"–See the current issue of Vegetarian Times. Plus the ad agency that put the campaign together took on Richard's company at cost–because they didn't have any clients from the food industry and they wanted to develop a creative campaign that they could use to win potential new clients. The agency designs the ads and Richard places them. The ad blitz started in Sept. 1997 and is costing $10,000 to $15,000 a month. The ads have run in three mainstream supermarket trade magazines *(Supermarket News, Produce Merchandising,* and *Produce Business),* and several natural food magazines *(Natural Food Merchandiser, Natural Health, Natural Health Shopper, Alive Canada, Veggie Life,* and *Healthy Living (New York City)).* Richard's products have been in Safeway–Canada for 11 years; the head buyer likes these products very much. "He thinks he can do a million dollars with our products this year." Most of the Richard's company's growth is coming from supermarkets and chains–A&P, Trader Joe's, Waldbaum's and Wegmans (back east).

Galaxy has introduced a new product named "Tofu Slices" which Richard believes is misnamed, since it appears to contain no tofu. It is made in Canada and contains "liquid soy mix" (and no casein). Address: President, Rella Good Cheese Co., P.O. Box 5020 (616 Davis St.), Santa Rosa, California 95402-5020. Phone: 707-576-7050.

2504. Demos, Steve. 1998. New developments with soymilk at White Wave. Part I (Interview). *SoyaScan Notes.* March 30. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The Morningstar Group is owned by a Texas-based company named Suiza (pronounced SUI-zuh) which is bigger than Morningstar. Suiza Foods Corp. is one of the very big, modern consolidators of the dairy industry. Dean Foods (which owns Vitamite) and Suiza are head-on competitors in the dairy product area. White Wave's Silk

brand soymilk is packaged in an ESL (extended shelf life) gable top carton at the plant of Morningstar Foods Inc. (formerly Avoset, now owned by Suiza), 299 Fifth Avenue, Gustine, California 95322. Phone: 209-854-6461. Contact: Gary Veuve (pronounced Vev, rhymes with rev), the plant manager. Gustine is located just off Highway 5 between San Jose and Merced in Northern California. This plant focuses on dairy products, packaged in both aseptic and ESL cartons, but it also packages Lactaid, Dole juice, a goat milk, etc. In addition, it packages Trader Joe's soymilk, indirectly via TAN Industries and San Diego Soy Dairy–which Steve believes breaches the contract between White Wave and TAN. Actually Gary Stein at San Diego Soy Dairy apparently has no hand in making the product–he just does the invoicing. The soy base mix is made at Soyfoods of America (owned by Ken Lee, in Duarte, Southern California) using equipment installed by TAN Industries (Ted Nordquist and Wally Rogers). When some other company moved out of Ken Lee's plant, Ted moved his company in. The installation began about a year ago [March 1997] and it became operational about 6 months ago [Sept. 1997]. This mix is then shipped by tanker-truck up to the Avoset-Morningstar plant, where it is processed. Avoset Food Co. is probably the predecessor which sold itself somehow to Morningstar which sold itself to Suiza. Steve is not aware of any relationship between Morningstar and the former nondairy pioneer Presto Food Products, which introduced Mocha-Mix Coffee Creamer in 1950 (Note: This product was later renamed Mocha Mix Non-Dairy Creamer).

Ted Nordquist has not been buying soymilk from International ProSoya Corp. (IPC) in British Columbia, Canada, for the last six months–to the best of Steve's knowledge. The soy base mix currently used to make Steve's Silk is made using TAN's plant at Soyfoods of America. There were numerous problems with the Silk product during the 6 months that TAN was making the transition from IPC to Soyfoods of America. Because of the nature of Steve's contractual relationship with TAN, Steve had no information about what was happening so he was unable to help smooth the transition. He inherited the problems and had to deal with them in a hindsight fashion.

Steve has an exclusive supply contract with TAN for all nondairy beverage in the USA as long as he meets specified minimums of purchase from TAN; he has always exceeded these minimums. Steve now believes it is no longer exclusive because of the new Trader Joe's soymilk. This will probably be grounds for a lawsuit. Steve feels that TAN has used White Wave and Silk as his springboard–while the contract is still in effect. Ted has a good product and he is going to be a competitor, and he has made plenty of money from the sale of Silk.

TAN decided (about 6 months ago) to stop buying soymilk from IPC and not the other way around. TAN made the switch for two reasons–both economic. First, TAN realized it would be more profitable the make the soymilk closer to Gustine, where it was packaged. The transportation cost of shipping soymilk from Vancouver to central California was about $2,000 per tanker-truck, compared with only about $1,500 for shipping from Duarte to Gustine. At least one truck is shipped per week–sometimes two. Second, since TAN now owns the equipment on which the soymilk is made, the profit margin associated with making the concentrate is now TAN's.

Steve has tasted several of the SoNice soymilk products made by IPC. He thought one of them was good tasting and competitively priced. The others he thought were typical soymilk formulations that were relatively weak. They had some off flavors and problems with balance, color, thickness. Steve thinks "there are a couple of fracturings of focus with the way they are approaching the market." They have both an aseptic line and a refrigerated line (in five flavors and two different sizes). The essence of refrigerated soymilk production is the ability to turn it fast enough so that you never have spoilage on the shelf. White Wave has never suffered returns on its refrigerated soymilk (Silk) but it took a lot of hard work to get their minimums up to that critical mass point where the product was turning fast. With soymilk in an ESL carton, the carton, not the soymilk, is the limiting factor. Silk has a use-by 84 days from the date of manufacture, but it will usually last for 100 days.

Steve has found it very difficult to work with the contract set up by Ted Nordquist, so much so that he plans to terminate the relationship. Steve feels this is unfortunate–"its like working with a black box." Steve has no idea how Silk is processed at the Soyfoods Unlimited or at the Avoset plant–or what the costs are. Steve flew with his people to San Francisco, and Ted and his people flew to Boulder–but they were unable to resolve the problems to Steve's satisfaction. "We have a great name, a great package, and a great product–but we have no control over costs." That means that if White Wave proves to the market that refrigerated soymilk is a big category, they will be "beat up" by competitors because of their inability to control costs. Ted basically says: "I will deliver the product to you at the following cost per gallon." Steve would like to continually lower the price of Silk–and he plans to do so soon. It will go under $3.00 per half gallon. Steve suggested that Ted take a royalty for the rest of his life and let White Wave deal with all manufacturing and cost reduction issues. But Ted wants control. Steve thinks he was "burned" in Sweden; he is a very good product developer but not such a skillful businessman. IPC tried to introduce SoNice into the U.S. market with a low price strategy, but White Wave and beat them to it. White Wave has contracts with all of the major chains that they exist in so that their pricing plus their support programs will pretty much negate IPC's attempt to come in at a lower price. If IPC really wanted to do so, they

would have to cut their prices again–which is a hard way to go with a new product.

Which soymilk does Steve like the best, simply in terms of organoleptics (flavor, color, consistency, etc.)? One SKU from Vitasoy is very good, the Silk made by TAN is a little bit better, but Steve feels that the new version of Silk developed by Jonathan Gordon (completely independently from TAN and not yet on the market) is better than either of those two products.

During the last year, White Wave has worked on new formulations with Tetra Pak at their research facility in Chicago, Illinois. The first major tanker-truck production run was last Friday. White Wave is now in full production with this new formulation of Silk. It will be processed at one plant in Utah and one on the East Coast. Many taste tests have shown that this new Silk is superior to the former Silk made and formulated by TAN. Silk will remain a refrigerated product; it will never be sold in aseptic cartons in the USA–that will be a fracture of focus that sends a mixed message. On the new carton will be two quotations: One from Suzuki roshi about "Beginner's Mind," and the other from Yogi Berra ("You can't hit and think at the same time")! Also at the top front of the carton is written: "32 mg isoflavones per serving." Plus, there is an offer for more free information on isoflavones. White Wave is working to start the educational process on isoflavones–and is also using its Web site and toll-free 1-800 number.

The big ad campaign in Los Angeles from Protein Technologies is teaching about isoflavones but the products (Health Source) are not doing well. So the publicity is helping White Wave. "Like a guy on a bicycle, we're drafting. We're going to try to stay in the draft of the ADMs and PTIs and see where it takes us. We don't have that much pride." Continued. Address: President, White Wave Inc., 1990 North 57th Court, Boulder, Colorado 80301.

2505. Skiff, James. 1998. Impressions from the Natural Products Expo West at Anaheim this month (Interview). *SoyaScan Notes.* March 30. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Jim finds that the soymilk made by Ted Nordquist (White Wave's Silk) is by far the best tasting–much better than SoNice from Canada. Both companies had booths at Anaheim. Jim has always liked Ted's soymilk the best. In fact, he and Howard Weiner were ready to set Ted up in business with a soymilk processing plant, but they could never come to terms. Ted wanted to control everything. Ted did not have a booth at Anaheim.

Dusty Cunningham of International ProSoya Corp. (IPC) was at the show, having come from England. She said that GMO-free soybeans are very big in the UK (where new labeling laws have been passed), and to a somewhat lesser extent throughout the rest of Europe. There was some interest in GMO-free soybeans at Anaheim, but it was still a bit reserved. This may be in part because Monsanto and ADM are working so hard to push things in the other direction.

In the past, most of the soy-related companies have been in the same general area at Anaheim. This year they were spread out over many buildings and on various floors so they were hard to find. Address: Cornbelt Foods, Inc., P.O. Box 218, Marshall, Minnesota 56258. Phone: 507-537-1406.

2506. Hayes, Keri. 1998. Study & directory focus on Canadian soyfoods industry. *Bluebook Update (Bar Harbor, Maine)* 5(1):1, 7. Jan/March.

• ***Summary:*** The Ontario Soybean Growers' Marketing Board (OSGMB) recently released these two important publications: (1) *Overview of the Canadian Soyfoods Market* (Sept. 1997, 44 p.). (2) *Canadian Soyfoods Directory* (Nov. 1997, 27 p.). According to Kim Cooper, Market Coordinator at OSGMB, the idea for the study was prompted by a new interest in soyfoods. Many people are now changing their diets and trying to eat healthier, based in part on the many health benefits of soyfoods.

With the controversy concerning the production of genetically modified (GMO) soybeans, the study suggests that Canadian soybean producers take advantage of the nice market created by the increased demand for non-GMO organic and identity preserved soybeans. It also recommends that soyfoods companies market products made from non-GMO soybeans. Finally, it calls for the formation of an organization (trade association) committed to the promotion of the Canadian soyfoods industry.

2507. Livesey, Bruce. 1998. Great moments in marketing. *Profit: The Magazine for Canadian Entrepreneurs.* Feb/March.

• ***Summary:*** About Yves Potvin, "Agriculture and Food Entrepreneur of the Year for B.C., 1997." The key to his early success was convincing grocers to move his meatless soy-based wieners from the meat department into the produce department. The move led to a doubling in sales and eventually led to his products being carried by major supermarket chains across Canada, fueling 40% annual growth to 1996 sales of $25 million.

2508. Yves Veggie Cuisine, Inc. 1998. U.S. packaging (Portfolio). 1638 Derwent Way, Delta (Vancouver), BC, V3M 6R9, Canada. 14 inserts.

• ***Summary:*** This is a spiral bound collection of the packaging for all 14 of Yves' products that have U.S. labels. Each product is a meat alternative, and each is manufactured and packaged by Yves Fine Foods, Inc., a subsidiary of Yves Veggie Cuisine, Inc., Delta (Vancouver), BC, Canada V3M 6R9. The fat-free products are: Veggie Breakfast Links, Veggie Chili Dogs, Tofu Wieners, Veggie

Wieners, Jumbo Veggie Dogs (Regular, Hot & Spicy), Veggie Ground Round (Original or Italian), Veggie Pizza Pepperoni, Veggie Pepperoni, Canadian Veggie Bacon, Veggie Deli Slices, Garden Vegetable Patties, Veggie Burger Burgers.

On the back of each label is a message from Yves Potvin, president and founder, which begins–"Bonjour! My name is Yves..." His first name is pronounced like the "Eve" in "Christmas Eve." "I founded this company in 1985 with a vision of creating a new generation of food to meet the needs of the health conscious consumer: A consumer who wants to cut down on fat and cholesterol without compromising on quality or taste. Today, I am proud to offer you a full line of healthy, convenient and tasty food made from 100% vegetable sources."

"In this edition, I would like to bring to your attention our new packaging. We have made it easier for you to choose your favorite Yves Veggie Cuisine products. All our wieners are in the purple packages, our burgers are in green, our slices are in blue and our ground round products are in red packages...A brand new look with the same great taste you have come to expect from us. And before I forget, all our products are now certified Kosher." Address: Delta (Vancouver), BC, Canada. Phone: 604-525-1345.

2509. Brown, Susan; Brown, Allan. 1998. The Noble Bean. *Food for Thought: Newsletter of the Ontario Natural Food Co-op (Canada)* No. 17. p. 6. April.
• ***Summary:*** "Noble Bean is owned and operated by Susan and Allan Brown. We manufacture our products out of a 750 sq. ft. production facility on 10 acres of land near Elphin, Ontario, in the Ottawa Valley. We are 22 miles from the town of Perth and 60 miles from Ottawa. Originally we were based in Toronto 18 years ago. Previously, we had spent many years living in the country and after establishing our market in the city, we had an excellent cottage industry that we could carry on from afar."

"Tempeh had been a part of our diet for years and once we learned how to make this amazing food, we started commercial production in 1980. We made our first major purchase of cooking equipment from a 60-year-old gentleman in Port Perry who had been stocking a few Toronto natural food stores with tempeh for a year. He had a stroke and could no longer continue. With a $500 loan, we paid $200 for a large custom-made cooker, a colander, racks and utensils, which we still use today.

"It was slow going at first, turning the industry and the public on to a new protein source. We made about 48 pounds per day, 4 days a week. While we were based in Kensington Market, we serviced the Toronto stores ourselves. Our production rate steadily increased as people became familiar with this new food. In 1985, when we did make the jump out of the city back to the land, we started producing 120 lbs. per day. It was at this time we took on our first distributor and our product got out much further.

"Through all of these times we were fortunate to be able to make a living at home. Children changed our lives immensely. Our two boys were raised with this business and home-schooled for years as they were growing. They are an integral part of the production line whenever they like and have the opportunity to make some serious pocket money.

"As the demand increased so did our production. We now make 200 lbs. per day, 3 days per week. We offer 6 different tempeh products all made from organically grown ingredients."

Contains 3 tempeh recipes: Ginger tamari tempeh. Lemon broil. Tempeh salad–Our summer favorite! A sidebar describes "What is tempeh?" Address: Owners, Noble Bean, RR# 1, McDonalds Corners, ONT, Canada K0G 1M0. Phone: 613-278-0173.

2510. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. New seed technology–Can't save this seed. April. p. 1.
• ***Summary:*** "In the March 28 1998 issue of *New Scientist,* Rob Edwards writes about 'terminator technology,' a genetic engineering technique that can be used to prevent the seeds of agricultural crops from germinating.

"The USDA and a Mississippi seed company, Delta and Pine Land, were recently granted a patent for the technique... The technique is expected to be adopted by all major seed companies within the next five years. Seed companies that market soybean varieties have sought ways to prevent farmers from using farmer-retained seed for many years.

"The new technology relies on a promoter sequence from a gene called Late Embryogenesis Abundant (LEA) that activates the gene it's attached to when a plant's seeds are maturing... At the end of the growing season, the promoter switches on the anti-germination gene. Seeds carrying the gene will grow into healthy plants with normal seed quality, but the seed produced cannot be used to produce another crop. The broad implications of this new seed technology may be profound." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2511. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. Belle of the ball. April. p. 4.
• ***Summary:*** "Canola is called the 'Cinderella' crop of Western Canada." The crop that was once called rapeseed has been "transformed from a low quality industrial oil crop with poor livestock feeding value, to a top quality food oil crop with reasonably good feed protein." Canadian plant breeders transformed the crop, giving prairie farmers a desperately needed alternative to wheat.

"Like soybeans, the first canola varieties developed through biotechnology are herbicide-resistant types.

Unfortunately those varieties have not been approved for consumption in the European Union,..."

Because of "disease and insect problems, canola can only be grown once in a four year crop rotation."

"While it is great to see the tremendous investment in research and development going into making canola an even better crop, it's alarming to realize that the work in soybean biotechnology being done in Ontario is very limited." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2512. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. Profiles: Ikuo Fujimori, President of Takeya Miso Company Limited in Nagano, Japan. April. p. 7.

• ***Summary:*** In Feb. 1998, at the Nagano Winter Olympics, the Nagano Miso Cooperative Association fed miso soup to over 2,000 athletes and 1 million visitors from all over the world.

"Mr. Fujimori is President of the Takeya Miso Company Limited, located in Nagano, Japan. He is also the Chairman of the Nagano Miso Manufacturers Association and Vice Chairman of the Japan Miso Manufacturers Association. Takeya Miso is a family business with a long and rich heritage. The Fujimori family has been making miso commercially since 1872... Presently Takeya Miso employs over 100 people in two plants, producing over 50 different miso products."

"His company has been purchasing Ontario soybeans for over 23 years." A photo shows Ikuo Fujimori and Tom Lassaline examining some Takeya miso products. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2513. Ralston Purina Company. 1998. Agribrands International, Inc. St. Louis, Missouri. 95 p. April 1. 28 cm.

• ***Summary:*** Ralston Purina Co. has decided to create a new company, Agribrands, by spinning off its international animal feeds and agricultural products operations. The company, whose stock symbol will be AGX, will be traded on the New York Stock Exchange. Shareholders of record of Ralston stock as of 1 April 1998 will receive one share of Agribrands Stock for every ten shares of Ralston stock they own. The spinoff will occur on April 1.

The production and sale of animal feed was the primary business of Ralston when it was established in 1894. Animal feeds and agricultural products continued to be the dominant business until the 1950s. "The development at that time of a new extruded dry dog food by Ralston revolutionized the pet food industry and transformed Ralston into primarily a consumer products company. Since then, the pet food business has continued to grow in importance to Ralston while the relative contribution of the animal feeds and agricultural products business declined. In the 1980's, Ralston's focus became increasingly directed away from the animal feeds and agricultural products business as Ralston acquired Continental Baking Company, the nation's largest wholesale baker, in 1984, and the worldwide Eveready battery business in 1986. The intention of Ralston's management to focus on consumer packaged goods and its stable of leading brands culminated in the sale of its U.S. animal feeds and agricultural products business to a subsidiary of British Petroleum in 1986. British Petroleum did not acquire Ralston's international animal feeds and agricultural products business, which became a non-core business, having limited synergies with Ralston's other international businesses."

"In 1994, Ralston spun-of Ralcorp Holdings, Inc., a subsidiary to which Ralston had contributed its breakfast cereal, baby food, cracker and cookie, coupon redemption and all-seasons resort businesses. In 1995, Ralston sold all of the capital stock of Continental Baking Company. In 1996, Ralston sold its assets associated with its cereal business in the Asia Pacific region (which it had retained in the Ralcorp spin-off), and terminated its European cereal operations. In 1977, Ralston sold its international soy protein technologies business. In line with this focus on its core businesses, Ralston attempted to sell its international animal feeds and agricultural products business to PM Holdings Corporation in 1994, but negotiations broke off as the parties were unable to agree on key terms of the transaction."

Agribrands' principal properties are its animal feed manufacturing facilities and property, which are located in the following countries: Brazil (7 plants), Canada (7), Colombia (6), France (7), Guatemala (1), Hungary (2), Italy (5), Korea (3), Mexico (8), People's Republic of China (4, incl. 3 joint ventures), Peru (3), Philippines (2), Portugal (2), Spain (7), Turkey (2), Venezuela (4, plus a hatchery) (p. 41-43; notes which are leased, joint venture, under construction, or to be divested). Address: Checkerboard Square, St. Louis, Missouri 63164.

2514. Brown, Allan; Brown, Susan. 1998. The origin of Plenty Canada (Interview). *SoyaScan Notes.* May 11. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** In the late summer of 1974, having met and become engaged on the Wisconsin Farm, Allan and Susan hitch-hiked to The Farm in Summertown, Tennessee, where they were married later that year. Allan was the founder and first director of Plenty Canada. Plenty USA had access to money from the Canadian International Development Agency (CIDA) for their carpenters in Guatemala who were rebuilding after the 1976 earthquake there. But before Plenty could get this money, they had to establish a branch or chapter of Plenty USA in Canada. Allan happened to be the person on the other end of the line when someone from Plenty USA phoned from Tennessee. He and Susan were living on a little farm outside of Halifax, so in about March of 1976, as they passed through Halifax on their way to

Lanark, Ontario, Allan incorporated the organization as "The Plenty Relief Society of Canada"; it later came to be known as "Plenty Canada." After doing the required paperwork, Allan and Susan went to Lanark to live on a piece of land with four friends who wanted to help Plenty: Bob Leviton, Ormond Lee, and Larry and Nancy McDermott. There was no "Farm" yet in Lanark and the four friends did not come from the Farm in Tennessee, but they felt akin to it. Starting immediately and for the next two years Allan ran "Plenty Canada" out of his bedroom in Lanark. But he didn't know what to do. So he and Susan would hitchhike 60 miles each way into Ottawa in winter to talk with the Mennonites about what to do and what an NGO (non-governmental organization) is. When the first money came in after about 6-8 months it brought tears to Allan's eyes; it was $50 for an individual donor who had been referred to Allan by The Farm in Tennessee. Allan worked on getting Plenty's credentials and making the organization "respectable." In early 1977 (it was winter) Allan and friends organized a "Plenty Jamboree" (a large benefit for Plenty) in a rented hall at McDonalds Corners (which was 6 miles from the Farm). Not long thereafter, money began to flow from CIDA to Plenty USA's work in Guatemala. In the spring of 1977 the papers for the Canada Farm in Lanark were finalized and signed in Tennessee. The land was in Larry McDermott's name.

In the spring of 1978 Allan stepped down as director of Plenty Canada. Norman Ayerst, Allan's closest and most trusted friend, took the job for the next two years. After that Larry McDermott became the director and continued for many years. In 1984 the Canada Farm disbanded. Larry and Nancy McDermott kept the land (since it was in their name) and continued to live on it.

In the late 1980s, Plenty had a great reputation for delivering good development projects. Adequate salaries were paid to those who put their life into Plenty and the need for additional funds necessitated a shift in focus. More projects were needed to raise more money to pay for an increase in expenses, and Plenty got those projects because of its shining reputation. But soon Plenty became too big for its management to handle. Communication and management skills were lacking, and Plenty's effectiveness was greatly diminished during this time.

Allan and Susan now own ten acres of land near McDonalds corners and what used to be The Farm in Lanark. They run Noble Bean, a tempeh shop. Allan has been making tempeh commercially since mid-1979. A map of the area (in southeastern Ontario province) looks like this: Lanark is 16 miles east of McDonalds Corners, and Noble Bean is about 8 miles west of the Corners, past Elphin. To get to Plenty (on the former Farm) from McDonalds Corners, drive east about 3 miles, then turn north and drive 3 more miles. The nearest main towns are Perth (on Hwy. 7–Trans-Canadian Southern Route) and Lanark. Address: Founders, Noble Bean, R.R. #1, McDonalds Corners, ON K0G 1M0 Canada. Phone: 613-278-2305.

2515. Roblin, Lynn. 1998. Asian staple soy good for you. *Toronto Star (Ontario, Canada).* May 20.
• ***Summary:*** Discusses the health benefits of soyfoods, which may be caused by their rich content of isoflavones, soy sterols, and soy protein. Various soyfoods are discussed: Tofu, soy beverages (brands include So Good and ProSoya So Nice), soy cheese, texturized soy protein (TSP, such as So Soya made by Bay Hill Impex Ltd. and TVP Meatfree made by Health Haven: A Vegetarian Place), tempeh, and most soy flours.

2516. Nordquist, Ted. 1998. Sanitarium Foods' So-Good soymilk now being made in Canada by Dairy World (Interview). *SoyaScan Notes.* May 28. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Sanitarium Foods is Australia's leading soymilk manufacturer. Their flagship soymilk product, based on isolated soy protein, is named So-Good. In a joint venture between Sanitarium Foods and the Canadian company Dairy World, So-Good is now being made in Canada.

So-Good, with sales in Australia of about $70 million a year, has roughly 85% of the Australian soymilk market. Sanitarium Foods' total sales are said to be about $130 million a year. The company is also Australia's leading manufacturer of breakfast cereals, and they been very successfully in using their cereal advertisements and packaging to promote their soymilk. Address: TAN Industries, Inc., 49 Stevenson St., Suite 1075, San Francisco, California 94105-2975; 660 Vischer Ct., Sonoma, CA 95476. Phone: 415-495-2870.

2517. Dorrell, Kathryn. 1998. Tastes like success–Top ten: Innovative airless cold grind technology enables IPC to produce soy beverages that consumers are drinking up. *Food in Canada.* May. p. 33. [1 ref]
• ***Summary:*** International ProSoya Corp. (IPC), based in Surrey, British Columbia, was founded in 1994 by three business partners from Saskatchewan: Dorothy Cunningham (who is currently helping to run a sister plant in Scotland), Lorne Broten (chairman and CEO), and George Conquergood (vice-president of operations). It was Conquergood who actually spearheaded the idea of commercializing the airless cold grind process developed by Raj Gupta, an Indian PhD, to feed children in Third World countries.

Conquergood first tried out the patented technology in his restaurant in Saskatoon. Noting the enthusiastic response, he decided to develop it into a separate business.

Initially, the company did not intend to make retail products. Rather, they wanted to use their patented process to produce bulk soymilk, that would be sold to food processors. This strategy changed when Jerry Duncan joined the company in 1996; today he is president and Chief Operating Officer (COO).

This year Duncan expects the company to reach sales of $18 million, up four-fold over 1997. In addition to its five flavors soy beverages, in January IPC launched a line of SoNice soy yogurts and on Feb. 1 the company's U.K. joint venture began producing soymilk. A.C. Neilsen upped its North American growth projections for this competitive sector to 60% from about 25% when IPC entered the market.

2518. Monsanto Company. 1998. Achievements: Plant biotechnology 1997. St. Louis, Missouri. 16 p. 28 cm.
• ***Summary:*** In the center of the front cover is a globe–like a flower, with two leaves and a stem below it. The company's new logo, containing the words "Food–Health–Hope" appears below it. On page 1 is the main message: "Our lives depend on plants." A graph (p. 4) shows the commercial acreage planted to Roundup Ready soybeans in three countries for the last few years: (1) USA–1 million acres in 1996, 9 million acres in 1997 (nearly 13% of total soybean acreage), and a projected 25 million acres in 1998. (2) Argentina–250,000 acres in 1996, 3.75 million acres in 1997 (nearly 22% of total soybean acreage), and a projected 10+ million acres in 1998. (3) Canada–600,000 acres in 1997 (less than 1% of total soybean acreage), and a projected 175,000 acres in 1998.

Some 56% of U.S. soybean growers used conservation tillage methods with Roundup Ready soybeans in 1997.

Page 5 states: "Grower results:... In 1997, 330 side-by-side comparisons in the Midwestern United States showed the combination of Roundup Ready soybeans and Roundup herbicide achieved an average yield advantage of 2.2 bushels per acre over traditional herbicide programs on Roundup Ready soybeans. In the same type of comparisons, an average yield advantage of 1.7 bushels per acre was demonstrated in Canadian soybean fields in 1997. In addition to yield improvements, crop quality improved because the harvested crop included fewer weed seeds.

"In the United States, growers reported high levels of satisfaction with Roundup Ready soybeans: 89 percent were more satisfied with the combination of Roundup herbicide and Roundup Ready soybeans than their regular soybeans and traditional herbicide programs, 62 percent said the Roundup Ready system was a better value, and 87 percent said they definitely or probably will plant Roundup Ready soybeans again in 1998."

"Roundup Ready soybeans are compatible with conservation tillage methods that help prevent soil erosion."

On pages 14-15 are Monsanto's answers to the following "Frequently Asked Questions": Should biotechnology crops be labeled? Why has Monsanto been active in the seed industry? (buying up seed companies). How did Roundup Ready cotton perform in the Mississippi Delta in 1997? Will insect-protected crops promote the development of insect resistance? Will Roundup Ready crops promote the development of herbicide-resistant weeds? What is the status of the delayed-ripening tomato? (Flavr Savr developed by Calgene, now a wholly-owned Monsanto subsidiary).

Note: This report was sent with two others and a cover letter on 21 May 1998 by Molly N. Cline, Director, Food Industry Relations (Monsanto). Address: 800 North Lindbergh Blvd., St. Louis, Missouri 63167. Phone: 314.694.1000.

2519. Yves Veggie Cuisine. 1998. Yves Veggie Cuisine: Enjoy breakfast to your heart's content (Ad). *Vegetarian Times.* May. Inside rear cover.
• ***Summary:*** This is a full-page color ad for Yves Veggie Breakfast Links (fat free). "These links taste just like the real thing but they're good for the heart. That's because they have no fat, no cholesterol, and they're made of soy protein." Address: Vancouver, BC V6A 2A8, Canada.

2520. Pearce, Steve. 1998. The early history of Nordisk, Novo, and Novo Nordisk (Interview). *SoyaScan Notes.* June 8. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Nordisk Insulinlaboratorium was started in 1923 in Copenhagen, Denmark as a manufacturer of insulin. Novo Terapeutisk was started in 1925 in Copenhagen, Denmark by the Pedersen brothers as another manufacturer of insulin. The Pedersen brothers had been working for Nordisk, but in April 1924 they got fired and formed Novo. Both companies began producing a new, revolutionary medical preparation, insulin, that had just been discovered by two Canadian scientists, Charles Best and Frederik Banting, who extracted it from the pancreas and used it to treat diabetes. Novo and Nordisk, which were independent competing companies in Denmark, merged in 1989 Today, Novo Nordisk is the world's largest maker of insulin. But in the USA, Novo Nordisk has a smaller share of the insulin market than Eli Lilly & Co.

Novo first started offering commercial enzymes in 1941; their first enzyme was trypsin. This was a logical progression, since insulin comes from the pancreas, which is also the body's storehouse of digestive enzymes. Address: Novo Nordisk, 77 Perry Chapel Church Rd., Franklinton, North Carolina 27525-0576. Phone: 919-494-3070.

2521. Brown, Allan; Brown, Susan. 1998. Making tempeh and other natural foods at McDonalds Corners, Ontario,

Canada (Interview). *SoyaScan Notes.* June 22-24. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** In June 1985, after about 5 years in Toronto, they bought ten acres of land near McDonalds Corners (not far from The Farm in Lanark, Ontario), and moved Noble Bean onto that land. There they started to make tempeh.

Throughout the 1980s, Allan and Susan trained Plenty volunteers at Noble Bean to make tempeh; these volunteers then took that knowledge abroad–mostly to developing countries. Maya Clarke took it to St. Lucia, Peter Dudding to Sri Lanka, a Canadian lady to Lesotho, and Mario and Laura Rimoldi [not Rimaldi] to Barcelona, Spain. Allan and Susan had met the Rimoldis on The Farm in Lanark in 1983; they later started making tofu as well in Barcelona.

Also during the 1980s, the Browns started some new businesses to bring in additional income. First came a natural cookie company named Casey's Cookies–after their firstborn son, Casey. Soon they were selling 40 to 60 dozen organic Casey's Maple Pecan and Honey Walnut cookies into the Ottawa market. In 1990 they sold the cookie company and took a trip/vacation to Mexico in their camper. On the way, they stopped by The Farm in Summertown, Tennessee, where they stayed with their old friends Cynthia and Albert Bates–who had taught them how to make tempeh and tempeh starter in 1974. Now the Bates were "deep into the Mushroom People trip. They were pumpin' the spores into logs out in front of their home with major rock and roll going on in the woods." Again the Bates taught the Browns a new occupation–how to grow shiitake mushrooms. Back home in Ontario, the Browns grew shiitake on about 25 logs outside their home–but mainly for their own consumption, because it was a very labor-intensive process. Soon, however, they were buying and re-selling shiitake–which they do to this day. Later, they started an incense import business named Soul Scents, which soon became the most profitable of all.

The Browns now make 600 lb/week of tempeh, working 3 days each week. It is still a very hands-on process. Allan and Susan are both active in the tempeh-making process (they also share child care), but now they have hired a woman who does much of the physical tempeh work. Most of Larry's time is focused on Soul Scents. Allan has always believed that vacuum packaging lowers the quality of tempeh. Their business has not grown in the last 5 years. He thinks it is because of the influx of meat analogs. Seth Tibbott did a survey before the Bali conference which showed that tempeh production in the USA peaked in 1989 or 1990. But several years ago Allan and Susan started an import business which has sales of $250,000 last year, so they are now in good shape financially. Two other tempeh companies in Canada are Soy City Foods in Toronto (they make mostly tofu; their tempeh is sold mostly in large cakes to foodservice) and Sooke Soyfoods in Vancouver, BC (owner Wayne Fatt gets plenty of competition from Seth Tibbott's Turtle Island Foods in nearby Oregon). Address: Founders, Noble Bean, R.R. #1, McDonalds Corners, ON K0G 1M0 Canada. Phone: 613-278-2305.

2522. Clarke, Maya. 1998. Learning how to make tempeh at Plenty Canada and introducing it to Sri Lanka (Interview). *SoyaScan Interview.* June 25. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Maya learned how to make tempeh at Noble Bean in Toronto during a two-week training program in the summer of 1984. She had been close friends of Norman and Sarah Ayerst, who worked with Plenty in Dominica, and who lived in back of the old Kensington Market in Toronto. Through Norman and Susan, Maya first met Susan and Allan Brown in Toronto, and specifically asked for that training–it was her idea, and that idea may have started a new program. She worked about 8-hours a day and soon was able to do the full production cycle. "Allan and Susan were very good teachers and really wonderful, interesting people." Maya went to Sri Lanka in September 1984; there she made tempeh and taught others how to make it. Maya thinks that she may have been the first person to be trained by Noble Bean to make tempeh in a developing country. Chuck Haren was also trained in about 1984, but probably on The Farm in Tennessee. Address: Sun & Sky Foods, 859 Dundas St., London, Ontario N5W 2Z8. Phone: 1-888-441-6680.

2523. *Biodiesel Report (NBB, Jefferson City, Missouri).*1998. New process cuts time, costs. June. p. 3-4.
• ***Summary:*** Researchers at the University of Toronto (Ontario, Canada) have developed a new process that cuts the time required to make commercial biodiesel-grade methyl esters to about 7 minutes, from 2-4 hours. The key was to add an "inert cosolvent [such as methyl t-butyl ether] to the base-catalyzed methylation of vegetable oils to speed the reaction time." A reactor is no longer required in industrial plants. Therefore, a smaller plant can have the same production capacity. "Esterification can now take place in the pipework and, therefore, the reaction becomes continuous. After the reaction, the cosolvent and the excess methyl alcohol are completely removed and recycled."

2524. Kikkoman Corporation. 1998. Annual report 1997. 339 Noda, Noda-shi, Chiba 278, Japan. 26 p. 28 cm. [Eng]
• ***Summary:*** The information in this English-language annual report is current as of April 1998. Contents: Financial highlights. Profile. A message from the president (Yuzaburo Mogi): The year in review, foundation, growth, and opportunity, serving a global market, toward the new century. A strong global operating presence: The Americas, Europe, Asia and Oceania, Japan. Operational review. Financial review. Financial section: Consolidated balance sheets, etc. Corporate history (chronology from April 1925

to October 1997). Global network (directory of Kikkoman names, addresses, and phone numbers worldwide). Board of directors and officers. Corporate data.

During fiscal 1997, ended 31 December 1997, consolidated net sales worldwide rose 4.0% over the previous fiscal year to 214.3 billion yen, breaking the record of 211.7 billion yen set in 1992. Yet income decreased by 21.6% to 5.711 billion yen.

Overseas sales expanded 10.6% in 1997 to 60.1 billion yen, and accounted for 28.0% of consolidated net sales.

The Americas: "In June 1998, Kikkoman Foods, Inc., the centerpiece of Kikkoman's expansion in North America, will celebrate 25 years of operations. The number of items produced at the plant has risen to more than 100, and the plant's production has expanded more than 10-fold."

"On April 17, 1998, Kikkoman commenced operations at its second U.S. plant, in Folsom, California. Built at a cost of US $46 million, the plant covers an area of approximately 210,000 square meters and has an initial annual production capacity of 10,000 kiloliters of soy sauce. In autumn 1998, the Company will begin delivering soy sauce produced at its second U.S. plant, in Folsom, California."

"Kikkoman's English-language Internet home page, opened in April 1997, receives approximately 100,000 hits a month, mainly from people in the United States. In particular, the recipes listed on the home page have attracted a great deal of interest, with site visitors frequently requesting further recipe information."

Europe: In Oct. 1997 Kikkoman Foods Europe B.V. began operation of its plant in the Netherlands.

Letter from Keiji Yamazaki of Kikkoman, San Francisco. 1998. Aug. 7. Kikkoman's annual reports are published in mid-June each year. Address: Noda, Japan.

2525. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. Project S.O.Y. winners. June. p. 1.
• ***Summary:*** "In 1997, First Line Seeds, in partnership with the University of Guelph, created a competition called Project S.O.Y. In this case, S.O.Y. is an acronym for Soybean Opportunities for Youth. Project S.O.Y. challenged entrants to develop new products using soybeans and was open to graduate and undergraduate students at the University of Guelph. This year the contest was expanded to include the Ridgetown, Alfred and Kemptville Campuses of the University."

"For the second year, the first prize winners in the undergraduate category were Jennifer Lo and Nicole Lepowski, Food Science students at the University of Guelph. The paid won $2,500 for their product *Expressoy,* a coffee-like beverage made from 100% roasted soybeans. Second place honors went to *The Joy of Soy,* a decadent non-dairy dessert shake. Madley Soy, a fresh soy pasta, and Soyburst, a soy beverage, tied for third place." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2526. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. Canadian International Food Soybean Conference and Tradeshow. June. p. 6.
• ***Summary:*** OSGMB "will bring the world's soybean market to Canada for an 'up close and personal' look at Ontario soybean production." The conference and tradeshow, "to be held Sept. 10 and 11th in London, Ontario, will feature a tradeshow on soybean products, marketing and technology, as well as speakers from around the world.

Tom Lassaline, Chair of OSGMB, says: "'Asia, which has always been our biggest market for food-quality soybeans, is steadily increasing. With all of the growing interest world-wide, I think we could significantly increase the acreage devoted to food-grade soybeans." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2527. *SoyaScan Notes.*1998. What ever happened to Plenty Canada? (Overview). Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** During the 1980s and early 1990s, Plenty Canada was a thriving, pioneering organization, which had creative projects that introduced soyfoods to and started small soy businesses in number of developing countries. The projects were largely (and generously) funded by CIDA, the Canadian International Development Agency. But by about 1993-94 Plenty Canada had ceased to be effective. This was a real tragedy. In the view of several people who knew and worked with Plenty Canada, there were several reasons for its demise. First, starting in the late 1980s, Plenty got too big too fast. Many of the first serious problems happened with the team in Sri Lanka, where a number of bad decisions were made. Sri Lanka was the biggest project to date, with about $5 million of funding over 5 years. Second, the organization was not managed effectively, and this caused a great deal of dissention. Larry McDermott was not a good administrator and did not know how to delegate authority and work. Some big mistakes were made, including financial and bookkeeping errors discovered during government audits. Second, the Canadian government made large cuts in CIDA's total funding as part of its own fiscal austerity program. There were some major falling outs and Larry ended up alone at Plenty Canada. About 4-5 years ago Plenty Canada's board of directors finally fired him, and he sued the board for unlawful dismissal. These two events effectively killed Plenty Canada. Larry is now the reeve (mayor) of Lanark Highlands, a large new organization formed by the amalgamation of four local townships. He is doing what he does best and what he did at Plenty–writing proposals to the government.

2528. **Product Name:** Soyganic.
**Manufacturer's Name:** Sunrise Markets Inc.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC, V6A 1H5, Canada.
**Date of Introduction:** 1998. June.
**Wt/Vol., Packaging, Price:** Paperboard tub.
**How Stored:** Frozen.
**New Product–Documentation:** Talk with George Conquergood, Vice-president of Operations, International ProSoya Corp., Surrey (Vancouver), BC, Canada. 1999. SoyaWorld presently markets three soymilk products: Sunrise soymilk (a beany-flavored product made and packaged by Sunrise in plastic bottles), Soyganic (a traditional beany-flavored product made by Sunrise with organic soybeans, packaged at Dairyworld in a gable-top carton and sold refrigerated), and So-Good (licensed from Sanitarium Health Food Co. in Australia, formulated and packaged in gable-top by Dairyworld, and based on soy protein isolates). Soyganic and So-Good appeared on the shelves at about the same time in 1997 under the Soyaworld brand. They distribute those three products extensively across western Canada, and sell them in the dairy case.

ProSoya News release. 1999. May 17. *Soyganic* is an organic soy beverage fortified with calcium and other essential nutrients.

Talk with Peter Joe, owner of Sunrise Markets. 1999. May 26. In late 1997 the Canadian government first allowed soymilk to be fortified with calcium and vitamins. This showed a weakening of their many laws designed to protect dairy products. Use of the word "milk" is still not allowed. Soyganic was launched in mid-1998.

2529. Yates, Ronald E. 1998. Shinzaburo Mogi in America: Making shoyu in Denver, Colorado, and Toronto, Canada. Work with and investment in the Oriental Show-You Co. in Columbia City, Indiana. In: Ronald E. Yates. 1998. The Kikkoman Chronicles. New York, San Francisco & Washington, DC: McGraw-Hill. xviii + 206 p. See p. 125-32.
• ***Summary:*** "Somewhere in Denver, Colorado, are the remains of what is most likely the first Japanese-built and managed soy sauce plant in the continental United States." It is fairly certain that Shinzaburo Mogi went to Denver in 1892. He was barely 20 years old and had a bold idea–to produce shoyu in the USA (p. 125). "As the fifth son of the Kashiwa branch of the Mogi family, he did not join the family business in Japan. His older brother, Shichirouemon Mogi, became the first president of the Noda Shoyu Co." (p. 129).

Kenzaburo "Ken" Mogi (not to be confused with Yuzaburo Mogi's younger brother, also named Kenzaburo) traveled to Denver in the early 1980s in search of info about his great-granduncle. "Kenzaburo, the son of Katsumi Mogi, who served as Kikkoman's president from 1980 to 1985, had heard the stories of this little-known member of the Mogi clan for years–some of them from Keizaburo Mogi, who served as president of Kikkoman from 1962 to 1974, when he became chairman of the board. Ken Mogi managed to learn that "Shinzaburo Mogi had indeed managed a soy sauce plant in Denver in 1907. Unfortunately the operation was not successful, Kenzaburo learned after meeting with a man who apparently worked with Shinzaburo Mogi at the plant... But failure in Denver didn't stop Shinzaburo Mogi from pursuing his dream of making soy sauce in North America" (p. 130). After Denver, he apparently helped manage a soy sauce plant in Toronto, Canada. Eventually, he settled in Chicago where he was involved in the trading business–including the importing of Japanese (most likely Kikkoman) shoyu to the United States" (p. 130-31).

Note: As of Nov. 2004 Soyfoods Center is aware of very little evidence indicating that Shinzaburo Mogi ever started a plant making fermented soy sauce in Denver, Colorado, or anywhere in the United States. We believe that Kikkoman has spread this unfounded rumor. On 7 Feb. 2005 Kenzaburo Mogi IV, the first person from Kikkoman who tried to find evidence of these existence of this soy sauce plant in Denver, replied to a letter from William Shurtleff asking whether Ken thought the Denver soy sauce plant was a theory or a fact: "I also think it is unfortunate that the theory is told as a fact." Address: Head, Journalism Department, Univ. of Illinois (Urbana).

2530. Bernard, Richard L. 1998. Soybean breeding and releases in the United States and Canada (Interview). *SoyaScan Notes.* July 14. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Prior to about 1960 the United States and Canada worked closely together on soybean development and breeding. Breeders in both countries drew on the same gene pool. With one or two exceptions, soybean varieties went back and forth across the border. Harosoy is a good example of how this worked. It was developed in Canada in about 1955 by C.W. Owen (Asst., Forage Crops, Dominion Experimental Station, Harrow, Ontario, Canada). Harosoy quickly came to the USA, where it took over much of the soybean acreage in Illinois. American soybean breeders put phytophthora resistance into it, then it want back to Canada where it took over more than 90% of acreage. Dr. Bernard grew up just 10 miles from this border.

Canadian breeders came to meetings in the USA. When the Americans released a soybean variety in the Group I or II area, they sent announcements to all the states and Canada–asking if they wanted to participate in the release. For many years the Canadians have been full participants in varietal tests; they started at about the time that C.W. Owen retired at Harrow. Address: USDA/ARS Soybean

Germplasm Collection, Room 229 EASB, 1101 W. Peabody Drive, Univ. of Illinois, Urbana, IL 61801.

2531. *Globe & Mail (Toronto, ONT, Canada).*1998. Milking healthy sales from the lactose-intolerant. July 15. p. A26. Facts & Arguments. [1 ref]
• ***Summary:*** In Canada, the nationwide retail value of soy and rice beverages (all flavors) at supermarkets and grocery stores has grown from $3.4 million in 1995 to $5.9 million in 1996, up to 9.8 million in 1997–according to a report from A.C. Nielsen. Note: These figures do not include sales in natural- and health foods stores.

New brands of soya drinks come in many flavors; they are free of cholesterol and lactose, and have added calcium. "Studies also suggest that the drinks can also relieve menopausal symptoms, help stave off osteoporosis and breast cancer, and reduce 'bad' cholesterol." A color photo shows the top half of packages of Natural soy beverage (aseptic) and So Nice (fresh, gable-top).

2532. *SoyaScan Notes.*1998. As of 1 Aug. 1998 there are 77 active tofu manufacturers in the USA and 55 in Canada (Overview). Aug. 2. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Firm confirmation was obtained by a mailing and phone calls for each of these companies. Note: This updated list was published in the Ten Speed Press edition of *The Book of Tofu* (Oct. 1998).

2533. Jones, Jacob. 1998. Thoughts on early patenting of plants (Interview). *SoyaScan Notes.* Aug. 17. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The first act that allowed Americans to patent plants, the Townsend-Purnell Plant Patent Act, was signed on 23 May 1930 by President Herbert Hoover. David Fairchild was a member of the committee that developed this act. Jacob has the minutes of at least one of the meetings of this committee. The Canadians had a similar but previous act, and the American committee got the comments of many Canadians who were affected by the act–such as commercial nurserymen and seedsmen–asking questions such as: How has the Canadian act affected your business? Has the act helped and protected Canadian farmers? Address: Graduate student, Purdue Univ., P.O. Box 132, Lafayette, Indiana. Phone: 765-742-8530.

2534. Fowler, Gerald. 1998. Genetically modified foods conference–Brussels. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 4(1):3-4. Aug.
• ***Summary:*** The author attended the most recent conference on Genetically Modified Foods held in Brussels on 23-24 June 1998. The attendees were primarily the senior executives from major players–both public and private, and the majority were from Europe. Emotions ran high at the 19 seminars and several question and answer periods. The four key issues were: Legislation and labeling, consumer trends and attitudes, biotechnology and other scientific issues, and segregation. "Those in favor of genetic modification and those opposed were well represented by both speakers and audience." A new non-GMO market is emerging–as are new opportunities for Canada to supply this market. Address: Manna International Inc., Sault-Ste-Marie, Ontario, Canada.

2535. Fujimori, Ikuo. 1998. Japan's position on genetically enhanced soybeans. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 4(1):3. Aug.
• ***Summary:*** Japan needs more time and information to discusses this matter seriously. Some consumers and consumer groups are now very nervous regarding the use of these soybeans. Address: President, Takeya Miso Co. Ltd., Nagano, Japan.

2536. Hernandez, Alejandro. 1998. Soybean research and biotechnology. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 4(1):2-3. Aug. Address: Research Manager and Senior Plant Breeder, First Line Seeds, Guelph, Ontario, Canada.

2537. Jessop, Doug. 1998. Update on tofu testing procedures. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 4(1):4. Aug.
• ***Summary:*** "As a result of the latest technical mission to Japan in September 1997, the Food Processing Lab at the Greenhouse and Processing Crops Research Centre (GPCRC) has made several changes in its tofu evaluation procedure." These three include temperature and time of soaking, use of the coagulant calcium sulphate dihydrate, and use of an 8 mm penetrometer to measure texture. Address: Food Processing Technologist, Harrow Research Centre, Harrow, Ontario, Canada.

2538. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. Soybean processing and the Guelph Food Technology Centre. Aug. p. 4.
• ***Summary:*** "For a crop like soybeans, processing is the 'magic' that converts a hard little bean into a wide variety of high quality, nutritious foods and food ingredients. Whole soybeans can be processed into traditional soyfoods like soymilk or tofu, or they can be separated into their primary components: Protein, oil, lecithin and fibre.

"Consumer interest in foods containing soybeans is on the rise... many Canadian food processors have begun to develop new soyfood products for the marketplace. However, soyfood development is no simple task, so many have contracted the services of the Guelph Food Technology Centre," which is located on the main campus of the University of Guelph. The facilities and benefits are

described. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2539. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. Growth of public biotechnology research in Ontario. Aug. p. 10.
• ***Summary:*** "Less than five years ago to was hard to find public researchers who were applying biotechnological methods to meet practical goals of Ontario soybeans. For many years soybeans were too great a challenge when it came to tissue culture, gene transformation [transfer], and fertile plant regeneration.

"Today its a very different story. Gene transfer technology and the use of molecular markers to assist breeders in their traditional crosses are well established. Agriculture & Agri-Food Canada has taken a lead role."

A photo shows transgenic soybean plants, growing in pots in a greenhouse; they contain a gene for high methionine protein. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2540. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. Profiles: Greg Devries. Aug. p. 13.
• ***Summary:*** "Greg Devries, a 1990 Ridgetown College graduate, finished his formal education four years later studying Ag Economics at the University of Guelph. Now that he's half way through his first year as an OSGMB director for Kent, however, Devries says he's learning more and learning faster than ever before." A portrait photo shows Greg Devries. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2541. Powell, Douglas. 1998. Genetically engineered soya. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 4(1):1-2. Aug.
• ***Summary:*** The article begins: "Genetically-engineered Roundup Ready soybeans must be considered the most successful product of agricultural biotechnology to date–if farmer acceptance is the measure.

"Monsanto estimates that more than 20 million acres of the transgenic soybeans were planted in the U.S. this year, up from 10 million in 1997 and 1 million in 1996. Next year, the number could easily double again to 40 million, out of a total of some 70 million U.S. acres. Similar ratios of genetically engineered soya are being planted in Canada.

"The rapid acceptance of herbicide-resistant Roundup Ready soybeans is linked to cost savings for farmers who can use fewer chemicals to keep weeds out of fields."

"But what if the measure is consumer support?... Around the globe consumers are asking the same questions: Why are you messing with nature? Why don't you label everything? Can you guarantee there won't be any long-term risks? Why are you playing God?

"One way to glimpse the public discussion of agriculture biotechnology is through the many public opinion surveys of biotechnology that has been conducted internationally over the past 20 years." Discusses approaches to and problems with labeling.

"Are there known health risks? Yes, in one instance, an allergen was transferred from one crop to another. Once discovered, the company acted responsibly and halted work at an experimental stage."

"In 1989 there was an outbreak in the U.S. of a new fatal blood disease, eosinophiliamyalgia syndrome (EMS). The outbreak killed at least 27 and sickened another 1,500. The cause was traced to certain batches of the amino acid, L-tryptophan, manufactured in Japan by Showa Denko and widely available in the U.S." Subsequent investigations by U.S. health authorities found that in 1989 the company had begun using a strain of *Bacillus amyloliquefaciens,* which had been genetically engineered to produce larger amounts of L-tryptophan. Address: Asst. Prof., Dep. of Plant Agriculture, Univ. of Guelph, Ontario, Canada.

2542. Rauchman, Steve. 1998. Look who's cookin' now: From chef to CEO–Yves Potvin is healthy, wealthy and wise. *Sales Promotion (Canada)* 2(4):28-32. Aug.
• ***Summary:*** The story of Yves Potvin and his company. Photos on the cover and in the article show Yves. Yves, age 42 (so born in about 1956), is married and has a daughter not yet a year old. At age 19, while studying to be an architect, he decided to switch to the two-year chef's course at the St. Hyacinthe Professional School of Cooking in Quebec.

He worked at a resort in the Laurentian Mountains in southern Quebec, at restaurants in Sherbrooke and later Vancouver, mainly French restaurants, working with French cuisine and nouvelle cuisine. He became an admirer of Paul Bocuse, who did something remarkable when he created *nouvelle cuisine* in the 1960s, and thereby changed French cuisine.

In 1985, at age 28, Yves started his own food manufacturing company, Yves Fine Foods, with $10,000 of his own money and $30,000 raised from family and friends. In 1992 the company was later renamed Yves Veggie Cuisine. His first product was a tofu wiener / hotdog.

2543. Snobelen, Mike. 1998. Example of non-genetically enhanced soybean program from Canada. *Canadian Soybean Technical Bulletin (OSGMB, Chatham, Ontario, Canada)* 4(1):3. Aug.
• ***Summary:*** In 1997, Snobelen Farms responded to requests for non-genetically enhanced soybeans from Europe and shipped two boatloads. Address: Mike Snobelen Farms Ltd., R.R. #1, Ripley, Ontario, Canada.

2544. ProSoya Foods Incorporated. 1998. Manufacturer of superior soyfoods products (Ad). *Soya & Oilseed Bluebook* 1999. p. 102.
• ***Summary:*** This one-third-page black-and-white ad shows 4 small aseptic cartons and four large gable-top cartons of ProSoya SoNice organic soy beverage, plus five cups of ProSoya SoNice Yogurt. The soymilk comes in natural, original, vanilla, chocolate & cappuccino (fresh & UHT packages). The soy yogurt comes in vanilla, strawberry, fieldberry, raspberry, and black cherry. The company's basic listing is on p. 143 of the Bluebook. See also ProSoya Inc. at 5310 Canotek Rd. #2, Ottawa, Ontario K1J 9N5, Canada. Address: 15350 56th Ave., Surrey (Vancouver), British Columbia, Canada V3S 8E7. Phone: (604) 576-8038.

2545. *Soya & Oilseed Bluebook.*1998—. Serial/periodical. Bar Harbor, Maine: Soyatech, Inc. Peter Golbitz, publisher and editor. Frequency: Annual.
• ***Summary:*** Preceded by Soya Bluebook Plus. A directory and information book for the soybean processing and production industries. The first issue (shipped Sept. 1998) is subtitled "The annual directory of the world oilseed industry." On the cover, below a map of the world is printed the date "1999" in large letters, followed by "A Soyatech Publication." Crops featured on the front cover and inside are "soya, corn, cottonseed, canola, rapeseed, sunflowerseed, palm kernel, palm, coconut, and peanut."

Contents (the four main sections are marked with a fold-out tab): Translations of oilseed terminology (English, German, French, Spanish, and Portuguese). Organizations and government agencies: Complete listings by country. Oilseeds and oilseed products: White pages (Index, individual crops), catalog pages, yellow pages (complete company listing by country). Equipment supplies and services. Oilseed statistics. Oilseed reference: Oilseed glossary, standards and specifications, oilseed technical charts and tables. Indexes: Comprehensive index, internet address index, brand name index, advertiser index.

Soy-related terms appearing in the translation section (p. 9-15) are: (1) Oilseeds and products: dairy analogs, lecithin–edible, lecithin industrial, meat analogs, miso, organic soy products, soy distillate, soy fiber, soy flakes–defatted–edible, soy flakes–full fat, soy flour–defatted, soy flour–enzyme active, soy flour–full fat, soy flour–low fat, soy flour–roasted, soy flour–textured, soy grits, soy isoflavones, soy livestock feed, soy oil margarine, soy oil shortening, soy oil–crude, soy oil–edible, soy oil–hydrogenated, soy oil–industrial, soy oil–refined, soy oil-based fuel, soy protein concentrate, soy protein isolate, soy protein–hydrolyzed, soy protein–industrial, soy sauce, soy sterols & tocopherols, soy-based foods–other, soybean fatty acids, soybean hulls, soybean meal, soybean meal–full fat, soybean seed breeder, soybean seed (for planting), soybean soapstock, soybeans–food grade, soybeans genetically modified, soybeans–green vegetable, soybeans–identity preserved, soybeans–non-gmo, soybeans–organic, soybeans, whole dry, soymilk beverages, soymilk powder, soynuts, tempeh, tempeh starter cultures, textured vegetable protein, tofu & tofu products, tofu powder. (2) Equipment & services: Coagulants for tofu, soymilk & tofu processing equipment, sprouting equipment. Address: 318 Main St., P.O. Box 84, Bar Harbor, Maine 04609. Phone: 207-288-4969.

2546. **Product Name:** Tempeh Burger.
**Manufacturer's Name:** Sun Foods Ltd.
**Manufacturer's Address:** 115 McCormack St., Toronto, ON M6N 1X8 Canada. Phone: 416-766-8214.
**Date of Introduction:** 1998. September.
**New Product–Documentation:** Letter (fax) from Jon Kessler of Sunergia Soyfoods. This new product was shown at the Natural Products Expo East at Baltimore, Maryland (Sept. 9-13). The company president is Harry Ha. Fax: 416-766-8309.

2547. Harrigan, Brian. 1998. ProSoya Inc. and International ProSoya Corp. (Interview). *SoyaScan Notes.* Oct. 15. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** ProSoya Inc. and International ProSoya Corp. (IPC) are definitely two separate organizations; each is very different in its activities and philosophy. IPC was not created out of ProSoya, but rather as a separate entity with different owners to license ProSoya's large-scale soymilk technology. This relationship as licensee still exists. IPC does not make equipment or sell equipment worldwide; they make soy products using ProSoya's technology. ProSoya has some ownership in IPC and they have a very small ownership in ProSoya Inc. People do associate these two companies, not realizing that they are totally separate. This confusion (and some things that people from IPC have said and done) has caused ProSoya quite a few problems.

ProSoya does not presently make any soyfood products. The plant on Canotek Road (in Gloucester, near Ottawa), where they used to make some products and have their offices, was originally used solely for R&B, but it expanded so much that it eventually also became a commercial soyfoods production facility. In Oct. 1996 ProSoya sold this plant to IPC and in Jan. 1997 ProSoya moved to separate offices about 500 feet away, on the same road; there they have offices plus a small area at the back for R&D, shipping, and receiving. ProSoya can still take customers and others to see this plant and its operation, but sort of as visitors.

ProSoya is an R&D and technology company. Their equipment is manufactured by other companies (as in India and Russia) for them.

There has been quite a shake-up at IPC recently and things there are rather chaotic. Their soymilk, SoNice was

the number one seller in Canada while it was out. It was made in two plants–in Vancouver (BC) and in Ottawa (Ontario, on Canotek Rd.). It's arrival expanded the market for all soymilks sold in Canada; so while Edensoy and Vitasoy lost market share to SoNice, they actually saw their sales volume increase. But recently IPC has had major problems their soymilk; it is no longer being manufactured, but small amounts are still left in the retail pipeline. The product is good, but it is mostly financial factors that have caused it to disappear from the market. IPC has not really commercialized their soy yogurt yet, except perhaps on a small scale for the Vancouver area–and there they were having problems with the formulation, though not with the taste. For more details, contact George Conquergood, who is the vice-president of operations. He is quite open in telling interested people what is happening. The plant in Scotland is a totally separate venture from IPC; Dusty is still there.

A new brand of soymilk in Canada is SoGood. Based on soy protein isolates, it is the same as that made by Sanitarium Foods in Australia. In Canada, it is made (mixed and packaged) under license from Sanitarium by Sunrise (owned by Peter Joe) in Vancouver. Sunrise and Dairyworld (the biggest dairy in Canada) now have a joint venture named SoyaWorld. Dairyworld distributes SoGood soymilk along with their line of dairy products. SoGood is now doing very well in Canada. When SoNice was on the market, it had a bigger market share than SoGood. But SoGood conducted a national advertising campaign that cost several million dollars, and greatly helped their sales. Brian finds the flavor of SoGood rather artificial and the list of ingredients is very long, so consumers tended to prefer the more natural and better tasting SoNice–until it ceased to be available.

Raj Gupta is now more involved with ProSoya Inc, than ever before. He comes to the office every day. When he started ProSoya he was working for the National Research Council (NRC) and working with ProSoya part-time on the side. Now he works on ProSoya full time; about 3 years ago he gave up his position at NRC. ProSoya was growing so much that the company need his full-time presence, and could afford to pay him what he needed.

Note: Other sources say that IPC recently declared bankruptcy. Address: Executive Vice-President, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2548. Harrigan, Brian. 1998. Update on the work of ASSOY and ProSoya Inc. in Russia and the former Soviet Union (Interview). *SoyaScan Notes.* Oct. 15. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** ProSoya has a technology transfer agreement with ASSOY (Associatsiia "Assoya"), the Russian Soybean Association, which is their partner. Founded and run by the energetic Alexander Podobedov, ASSOY has made more than 250 of the small SoyaCows, and sold them within the former Soviet Union during the last 1½ to 2 years. In addition, ProSoya has sold about 100 of these small SoyaCows elsewhere. In Russia, most of these SoyaCows are in the shops of small entrepreneurs. They make soyfoods to retail to the general public. In Krasnodar alone, ASSOY has opened 7 shops which are called Soyushka, meaning "Little Soya." They sell only soyfoods–tofu, soymilk, soynuts, soy oil, soya flour, soy power and a variety of foods made from soya–such as soya breads. Outside of Russia, there are SoyaCows in the Ukraine, Moldova, Belarus (quite a few there). ASSOY is now actively running newspaper, radio, and TV ads in various countries of the former Soviet Union, and throughout this region Soyushkas are becoming well known and the people are becoming soya-conscious–largely through the efforts of ASSOY. Brian has the whole story, but in Russian, in marketing documents. On paper the story sounds better than it looks when you actually go there. Some of the plants are idle. Some employees haven't been paid in 6-8 months, so they don't work very hard. ASSOY keeps trying to get the Russian government to help them out. The government keeps saying that they will, and they have even signed decrees saying that the government will help send soyfoods to the prisons, schools, and hospitals–where there are dire shortages of protein. But the government never does what it says.

ASSOY provides spare parts for the soy shops, plus all the marketing, recipes and recipe books, everything. The man behind these remarkable developments is Alexander Podobedov, who is a real entrepreneur. But he has a style that is very rough and tough with people, which sometimes (especially in Russia) helps him and other times (especially with Westerners) limits his effectiveness. Address: Executive Vice-President, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2549. Bynum, William. 1998. Soy Amazing and Better than Milk. Big changes at Hearty Life, Sovex Natural Foods, McKee Foods, and Fuller Life Inc. (Interview). *SoyaScan Notes.* Oct. 28. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** William has been with the company for about 6-7 months. Soy Amazing is a new product, introduced less than 2 years ago; it is actually the original Better Than Milk formula. However there is another product named Soy Amazing, sold only in Canada, which is the same as the present U.S. Better Than Milk; that is because it is illegal to use the name "Better Than Milk" for this product in Canada.

For many years, Sovex Natural Foods has been owned by the McKee Foods Corporation of Collegedale, Tennessee. The Southern Adventist University is also

located in Collegedale. Founded, owned, and run by Jack McKee (a well respected Seventh-day Adventist), McKee Foods makes mostly popular snack foods. Their most popular product line is "Little Debbies," consisting of about 40 different varieties of snack cakes–from Jello Rolls to Honey Buns. For this reason they kept an arms-length relationship with Sovex Natural Foods. Glen Fuller has been with McKee Foods for about 20 years, and has been the vice-president for the past 10-12 years. Glen developed the Better Than Milk formula and line of dry soymilk products about 7 years ago.

On July 3 of this year, Sovex was merged into its parent company, McKee Foods, and made a division of that company; it was no longer a separate subsidiary. Sovex also makes a wide variety of cereals, bran, granola, and the like. The name Sovex ceased to exist; it is now McKee Plant No. 6. Shortly after McKee absorbed Sovex, probably at Glen's urging, McKee decided to spin off and sell him the Hearty Life brand and the Better Than Milk product line–which includes the Soy Amazing products. That transaction was finalized last Friday, October 23. So now Glen is president, CEO, and sole owner of a new company named Fuller Life Inc. The address has changed to 1628 Robert C. Jackson Drive, Maryville, Tennessee 37801. Phone: 423-681-4171. Maryville is about 100 miles from Collegedale, and the site of Glen Fuller's main home; called his "mountain home," the property backs up on the Great Smoky Mountains. Their main product is Hearty Life Better Than Milk–which includes Soy Amazing and many SKUs including five flavors of the soy Better Than Milk, two flavors of the rice Better Than Milk. Most of it comes in canisters or 25 lb bulk bags, but they also have an aseptic UHT liquid soy Better Than Milk (original flavor). William will send some press releases and a sales brochure, with the date that each product was launched.

In 6-8 months Fuller Life plans to introduce a new product name Better Than Milk Plus, which will be an all-organic, enriched and fortified powdered version of the present Better Than Milk.

Follow-up talk with Darlene Foot, Glen's secretary, still at his office in Collegedale. She joined the company about 5 years ago. At that time Glen Fuller was president. John Goodbrad retired in about 1988-89 and died about 3 years ago. Sovex, the yeast product, still exists. Some years ago Sovex Natural Foods sold the rights to Village Market, located near Southern Adventist University, which subcontracts the production with some other company. Address: Consumer Affairs Administrator, Fuller Life Inc., 1628 Robert C. Jackson Dr., Maryville, Tennessee 37801. Phone: 423-681-4171.

2550. Gupta, Rajendra; Chopra, Sudhir. 1998. Airless food processor. In: Conference Proceedings, 1998 Appliance Manufacturer Conference & Expo. See p. 225-33. Held 12-14 Oct. 1998 at Opryland Hotel, Nashville, Tennessee. [11 ref]

• ***Summary:*** Discusses a prototype kitchen top machine for making soymilk. "As part of their Advanced Life Support System studies, NASA recently completed tests on a prototype appliance for processing soybeans into soymilk and its byproduct okara. The patented technology used in the appliance provides for the grinding and processing of any food in an oxygen-free environment, thus preventing the degradation of food by oxidation either in flavor or nutritional value.

"The prototype comprises a patented airless grinder with an in-situ steam injection cooker, a steam generator with temperature controls, and provision for timing controls similar to those provided on an automatic bread-maker. The appliance can be used not only to make soymilk, okara, but also pureed soup. It can also grind and steam vegetables, make milkshakes, produce hot beverages, etc.

"In reference to the prototype appliance they tested, scientists as NASA-Johnson Space Center and University of Houston [Texas] concluded that 'with proper care, the production of soymilk from a prototype machine would comply with the requirements imposed by a closed system'.

"Acknowledgements: The authors would like to express their sincere thanks to Yael Vodovotz and Lisa Bye of NASA-Johnson Space Centre for conducting tests on the prototype. They would also like to thank Andre Ladouceur at ProSoya for his continuing involvement in the building and development of the prototype." Address: ProSoya Inc. [Ottawa, ONT, Canada].

2551. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. Food Soybean Conference. Oct. p. 4.

• ***Summary:*** "Canada played host to the 1st Canadian International Food Soybean Conference & Trade Show, held September 10-11 in London, Ontario. Close to 200 people from Canada, North America and around the world gathered to hear the latest in the area of food grade soybeans. The conference was held primarily to bring the food soybean world to Canada and to show first-hand Canada's reputation as a reliable and consistent supplier of high quality soybeans suitable for world soyfood markets."

A photo shows: "Len Stuttman, owner of Sycamore Creek and a user of Canadian soybeans, hands out samples of his roasted soynut butter" at the conference. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2552. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. Profiles: Kim Turnbull. Oct. p. 7.

• ***Summary:*** Kim is a farmer. "Seed and food-grade contracts also let him tap into quality premiums." Now he is getting new experience on OSGMB's marketing committee. A portrait photo shows Kim Turnbull. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2553. ProSoya Inc. 1998. Creating great opportunities in the health food industry: Advanced soymilk technology (Portfolio). Ottawa, Ontario, Canada. 17 inserts. 31 cm.
• ***Summary:*** The 17 documents enclosed in this portfolio (containing many black-and-white photos) include: (1) Cover letter from Brian Harrigan, Executive vice-president. (2) Creating great opportunities in the health food industry: Advanced soymilk technology (4-page brochure). (3) Soymilk systems: VS 30/40, VS 200, VS 700, VS 2000, VS 3000 and VS 4000. (4) Equipment for upgrading. (5) Production chart. Nutritional comparison of soyfoods (four bar charts). (6) ST 2000–Continuous soaking and hydraulic conveying system. (7) ST 2000-OPT–Dry bean conveying system, washing/dewatering augers, an circulating pumps. (8) EC 200–Extractor. (9) EC 1000 & EC 2000–Twin-stage, self-desludging extractors. (10) EC-OPT–Okara conveying system and spare cone. (11) Continuous heaters. (12) Continuous cookers. (13) VF series–Model 200, 3000, and 60000–Vacuum flash deodorizing systems. Address: 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2554. ProSoya Inc. 1998. Creating great opportunities in the health food industry: Advanced soymilk technology (Brochure). Ottawa, Ontario, Canada. 4 p. 28 cm.
• ***Summary:*** This 4-page black-and-white brochure (with green and yellow overlays), discusses the company, the technology, the equipment, our customers, business opportunity. "ProSoya technology is currently being used in more than 20 countries. There are large-scale processing plants in Canada, Russia, and Scotland. Over 250 small, to medium-scale plants are located on five continents around the world. ProSoya has technology transfer agreements with companies in Russia and India for the manufacture of smaller soymilk systems under license."

Photos show: (1) ProSoya's VS 7000 system. (2) ProSoya's VS 200 system. (3) ProSoya's VS 40 system. (4) ProSoya's VS 4000 system. (5) A sliced cake of tofu, a glass of soymilk, and scoop of soy ice cream on a cone. Address: 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2555. Zind, Tom. 1998. Soy dairy alternatives: The soy dairy category is hot, with organic soybeans taking center stage in new product introductions. *New Product Sightings.* Nov. p. 8-9. [1 ref]
• ***Summary:*** Soyatech (Bar Harbor, Maine) reports that U.S. soymilk sales reached about $150 million in 1996, and that since 1990 the market has been growing at about 12% a year.

The 17th Annual Market Overview, published by *Natural Foods Merchandiser* magazine, reports that sales of only organic dairy alternatives (a category which is mainly soy-based products, but which also includes rice milks, oat milks, etc.) grew 45.5% from 1996 to 1997. Dollar sales grew to $32 million from 22 million. During the same year, non-dairy yogurts (a category which is mainly soy yogurts) grew to $10.6 million from $5.5 million.

The Ontario Soybean Growers' Marketing Board in Canada predicts that sales of soy beverages in that country will increase by about 68% from 1997 to 1998, to 6.7 million liters in 1998 from 4 million liters in 1997. Although the country's large Asian population has long been the largest consumer of soy beverages, the Board believes that most of the new growth is coming from sales to non-Asians (i.e. Caucasian Canadians).

The marketing manager for Vitasoy USA (based in South San Francisco, California) says sales of their Vitasoy soymilk to supermarkets alone has grown at 15-20% for the last few years.

Why all this interest in soymilk? "Health awareness for one. Science has virtually crowned the soybean as one of the most healthful single plant foods known to man, a versatile product with silver-bullet like qualities" for reducing the risk of heart disease and some cancers, easing menopausal symptoms, sidestepping lactose intolerance, and slowing the onset of osteoporosis. Scientists believe that many of the benefits come from isoflavones–of which soybeans are the only common source.

Photos show: (1) A Pure-Pak quart of White Wave's Silk–Organic Plain Dairyless Soy Beverage. (2) Many packs of SoNice (made by ProSoya Foods of Surrey, British Columbia), in original, chocolate, vanilla, strawberry, and cappuccino flavors. Some are in refrigerated Pure-Pak cartons and other in aseptic cartons. (3) Two aseptic packs of Enriched Vitasoy in original and vanilla flavors. (4) Tofutti Pan Crust Pizza Pizzaz, a pizza product made with soy cheese. Address: Freelance writer living in the Midwest.

2556. Kurowska, Elzbieta M.; Jordan, J.; Spence, J.D.; et al. 1998. Soy and heart disease: Hypocholesterolemic effects of soy–Role of the main components of whole soybean products, soy protein and soy oil, in reducing hypercholesterolemia (Abstract). *American J. of Clinical Nutrition* 68(6S):1519S. Dec. Supplement.
Address: 1. Dep. of Biochemistry; 2. Dep. of Family Medicine; 3. Dep. of Clinical Neurological Science. All: Univ. Hospital, London, Canada.

2557. *Ontario Soybean Growers' Marketing Board Newsletter.*1998. Profiles: Bob Broeska. Dec. p. 7.
• ***Summary:*** A portrait photo shows Bob Broeska, who is President of the Canadian Oilseed Processors Association (COPA). At the start of the decade, Canada's oilseed crushers processed 40 million bushels of soybean a year. "In 1997, the soybean crush hit 56 million bushels"–up 42.5% in 7 years.

Still Canada's "crushers are frustrated. They say they could grow even faster if countries around the world were forced to end their unfair export subsidies and import tariffs." Broeska says COPA members are the "world's lowest cost oil producers." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2558. Rao, A.V. 1998. Soy and cancer–Soybean anticarcinogens and anticancer mechanisms: Anticarcinogenic properties of plant saponins (Abstract). *American J. of Clinical Nutrition* 68(6S):1528S. Dec. Supplement.
Address: Dep. of Nutritional Sciences, Univ. of Toronto, Toronto, Canada.

2559. Filey, Mike. 1998. Discover & explore Toronto's waterfront: a walker's, jogger's, cyclist's, boater's guide to Toronto's lakeside sites and history. Toronto, Ontario, Canada: Dundurn Press. 144 p. See p. 17-18. Illust. Maps. 22 cm. *
• ***Summary:*** The chapter titled "Walk One" (p. 17-18) states: "... built on this site at the southeast corner of Lake Shore Boulevard and Parliament Street in 1943 by industrialist E.P. Taylor in response for the government's request for help in alleviating the shortage of vegetable oils during the Second World War. His company was originally called Sunsoy..."

2560. Melina, Vesanto; Forest, Joseph. 1998. Cooking vegetarian: healthy, delicious and easy vegetarian cuisine. Minneapolis, Minnesota: Chronimed Press. 239 p. + 8 unnumbered pages of plates. Illust (some color). Index. 25 cm. *
• ***Summary:*** Contains soy recipes. Melina Vesanto was born in 1942.

2561. Zavitz, Daniel. 1998. Diary of Daniel Zavitz, of Lobo Township: Written at Guelph, 11th month, 23rd, 1896. *Canadian Quaker History Journal* No. 63. p. 91-96.
• ***Summary:*** Daniel Zavitz was the father of Charles A. Zavitz, Canada's soybean pioneer. The diary begins: "I was born in the township of Bertie, district of Niagara, Upper Canada the 24th of 2nd month 1821. My parents were Jacob and Elizabeth Zavitz, both of Bertie, who cared for me until I was 22 years old, gave me as good school learning as they were able to... Our day schools lasted three months. In the winter months after school hours worked doing chores, often late into the evening and early in the morning until school time. The rest part of the year worked on the farm.

"I had three sisters [Sarah, Margaret, and Emily] and one brother older than I was, the latter died when young, which left me the oldest boy to help father on the farm." "The teacher always boarded around amongst the employees, according to the number of scholars each one sent to school." He married Susan Webster Vail at the Rochester Monthly Meeting (at Oakfield, near Rochester, New York) on the Second of Second month 1847.

A map (p. 91) shows details of the area north of Lake Erie, including London, Lobo township, Coldstream, and the Niagara River. A half-page photo (p. 93) shows the family of which Daniel Zavitz is husband. Left to right: Charles (about age 5), Daniel, Caroline, Samuel, Susan (wife), and Edgar Zavitz.

Talk with James Zavitz. 2004. Jan. 21. Oakfield (located about 35 miles due west of Rochester, and the home of Susan Vail) was a preparative meeting under the care of Rochester Monthly Meeting, which was under the care of Farmington Quarterly Meeting (located about 20-25 miles southeast of Rochester). The half-yearly meeting was part of Genesee Yearly Meeting, which covered the western part of New York and the Niagara Peninsula westward into Ontario, Canada–but not including Toronto. Address: Guelph, Ontario, Canada.

2562. Poysa, Vaino. 1999. Food-grade soybeans in Canada (Interview). *SoyaScan Notes.* Jan. 5. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Dr. Poysa is a public soybean breeder, who was hired in 1996-97 to replace Dr. Richard Buzzell at the Harrow station. Like his predecessor, he specializes in breeding food-grade soybeans.

Canadians use the term "food-grade soybeans" for what Americans call "large-seeded vegetable-type soybeans." The term "food grade" implies both large-seeded and clear hilum. The corresponding term for the rest of the soybeans, which are typically crushed to make soybean oil and meal, is "commodity soybeans." By far the most widely used food-grade soybean in Canada, and by overseas customers of Canadian exporters, is Harovinton. It was developed by the Agriculture Canada Research Station at Harrow (mainly by Dr. Buzzell) and released in 1989 to Maple Leaf Foods. In Canada, the exclusive rights to grow and sell a particular food-grade soybean variety that is publicly developed are sold to one and only one private company.

Virtually all of the soybeans sold by Canadian companies to overseas food manufacturers are food grade and identity preserved (IP). Because they are IP, the Canadian companies can guarantee that they are also not genetically engineered, i.e. GMO-free.

Two newly released food-grade soybeans are AC-756 and AC-Onrei [derived from the Japanese variety Enrei]. The former was released to W.G. Thompson & Sons Ltd. and the latter was released to Maple Leaf Foods at the end of 1997. Neither of these two varieties have been registered. In fact most food-grade soybeans are no longer registered! Why? For basically two reasons: (1) Since they are developed mainly for their food properties, it is not considered important to give details about their agronomic

properties. (2) The private seed breeders are applying pressure to stop registration of food-grade soybeans.

Note: This is the earliest English-language document seen (June 2009) that contains the term "commodity soybeans," which is used in contrast to "food-grade soybeans." Address: Soybean breeder, Agriculture Canada Research Station, Harrow, ON N0R 1G0, Canada.

2563. Nauto, Janet. 1999. New developments with soybeans in Canada (Interview). *SoyaScan Notes.* Jan. 12. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** This year OSGMB will celebrate its 50th anniversary, and in June or July will publish a book titled "Fifty Years of Progress.

In Canada large-seeded food-grade soybeans are typically called either "white hilum" beans or SQWH (special quality white hilum) beans. The term "food-grade" is not used that much. There have been some efforts to separate out white hilum soybeans from the marketing agreement–so that they could be sold at any price. White hilum soybeans are always identity preserved. Most are sold overseas or to soyfoods manufacturers in Canada.

Recently Canada has decided to keep genetically-engineered soybeans segregated or "identity preserved" so that those who do not want them can be assured of not getting them. Address: Ontario Soybean Growers' Marketing Board, Box 1199, 175 Keil Dr., S., Chatham, ONT, N7M 5L8, Canada. Phone: 519-352-7730.

2564. Cooper, Kim. 1999. New developments with soybeans in Canada (Interview). *SoyaScan Notes.* Jan. 18. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The term "food-grade soybeans" is increasingly widely used by Canadian soybean exporters and their Asian customers to refer to all soybeans developed specifically for food use. Many are large seeded, but some are also small seeded–developed for sprouting (to have high germination) or natto. All have a white hilum. The biggest problem with this term is that all soybeans can be used for human food. About 5-10% of the soybeans exported from Canada are "food-grade."

Most overseas buyers of Canadian food-grade soybeans want them to be GMO-free. In addition, some overseas crushers now also want soybeans that are GMO-free, though they need not be food grade.

The genetically engineered soybeans grown in Canada are generally handled in two different ways. The great majority, which are used by Canada's two major soybean crushers (owned by the American companies ADM and Central Soya) are given no special treatment; they are simply sold by farmers to their local elevator, where they get mixed with other soybeans in "the stream." These two crushers have made it very clear that they do not want these GMO soybeans to be segregated or given any special treatment. However the genetically engineered soybeans purchased by soybean exporters are handled like any other identity preserved (IP) crop, primarily so that buyers in foreign countries who want GMO-free can be guaranteed what they want. For the past ten years, the Canadian soybean trade has been developing its system of IP varieties, especially to serve Japanese customers–who usually like specific varieties. Exporters would contract with farmers to grow these special varieties, then at harvest they would be stored in their own elevator, silo, tank, etc. and shipped with their identity preserved. Organically grown soybeans are handled in a quite similar way. So when GMO soybeans arrived, the export trade decided to handle then just like IP varieties–actually more like organic soybeans than like IP. Setting up such an IP system has that added benefit that if and when, in the future, consumer benefits are genetically engineered into soybeans, their identity will have to be preserved. An increasing percentage of the soybeans grown in Canada are grown under contract–perhaps about 10% at present.

Shurtleff notes: The U.S. soybean distribution system is based on bulk shipments; its ability to handle IP shipments is much less advanced than the Canadian system. For this reason, the U.S. exports of soybeans to Europe have decreased dramatically over the past year. In America, GMO soybeans simply took over the main soybean distribution system; they did so with hardly any discussion and probably based on the assumption that hardly anyone would care. It is the latter assumption that is highly questionable.

Kim: U.S. soybean exporters went to Europe several years ago and told their customers: "We have these genetically modified soybeans and we're going to be shipping them to you starting this fall." The European buyers explained that European consumers are different from American consumers, and may want to think about and discuss this new matter. The American's said, "Sorry, we can't wait. The soybeans are coming." The Europeans felt upset, like the Americans were trying to shove something down their throats.

In Canada, the problem is far from resolved. Consumers in Canada are starting to become aware of this issue, and they are just starting to sound the alarm. But more and more genetically modified products are coming onto store shelves, so Kim believes consumers will gradually develop confidence in them–but not in the next 1-2 years. Kim believes that there is essentially no chance that most consumers will reject genetically modified foods in the long run.

The international conference in Canada last September was attended by about 200 people; there would have been more but for an airline strike in Canada. Peter Golbitz presented an excellent keynote address. His paper and some others are posted on the OSGMB website. Address:

Marketing Specialist, OSGMB, Chatham, Ontario, Canada N7M 5L8. Phone: (519) 352-7730.

2565. ProSoya Inc. 1999. ProSoya VS30/VS40 SoyaCow systems: Operating manual. Ottawa, Ontario, Canada: ProSoya Inc. 28 p. 28 cm.
• ***Summary:*** Contents: 1. Technical description: Grinder/cooker, steam generator (boiler), mechanical filter press, tofu box. 2. Preparations for making soymilk: Bean soaking, checking and preparation of the system. 3. Making soymilk: Grinding and cooking, extracting the soymilk, boiler shutdown. 4. Making tofu. 5. Storage of soymilk and tofu. 6. Cleaning and sanitation of the machine and utensils. 7. Precautions. 8. Do's and don'ts. Packing List. Trouble Shooting Guide. Figures (4 figures).

Talk with Brian Harrigan. 1999. June 16. This booklet was published in Jan. 1999 by ProSoya Inc. Address: 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2566. Thompson, Wes. 1999. Re: Acquisition of Sycamore Creek Co. of Mason, Michigan. Letter to Mr. Arnold of Keebler Co., 5000 Osage, Denver, CO 80221, Jan. 1 p. Typed, with signature on letterhead.
• ***Summary:*** Keebler Co. uses soynuts made by Sycamore Creek in their cookies. Wes Thompson is pleased to formally announce the acquisition of this company. "Irene and Leonard Stuttman have done a remarkable job of developing their products and business over the past 24 years. "Wes has asked Tina Hernandez, from his office, to join the company as Business Manager; she can be reached in Mason.

"As an introduction, we are a 75-year-old family-owned business. Originally in the grain business, we have expanded into farm supply and focused on service-oriented customers. We have developed relationships with processing customers in North America and overseas. Today our business employs 300 and has annual revenues of approximately $350 million. Our head office is in Blenheim, Ontario. Over the years we have been a supplier to Sycamore Creek, and therefore a natural successor."

The letterhead shows a line drawing of a grain processing building on the left, grain elevators in the center, and a train on the right. Below that is written: "Beans. Grains. Seeds. Fertilizers."

Talk with Len and Irene Stuttman. 1999. March 17. This letter was probably written in late January or early February 1999. Address: President, W.G. Thompson & Sons, Limited, 122 George St., Box 250, Blenheim, ONT Canada N0P 1A0. Phone: 519-676-5411.

2567. Gupta, Raj. 1999. Progress in development of natural soy protein isolates and concentrates (Interview). *SoyaScan Notes.* Feb. 4. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Raj and ProSoya are making good progress in developing soy protein isolates and concentrates made from whole soybeans. All, or almost all, isolates and concentrates are made from defatted soybean meal, which is usually defatted with hexane solvent. Raj first makes the whole soybeans into soymilk, then removes the carbohydrates (fiber and sugars), and finally removes most or all of the fat. It is the last step that is the most difficult, and it is more difficult on a commercial scale than on a laboratory scale. Raj hopes to have the technology ready within 2 years. He will license the technology, rather than make and sell the finished product–although he will also have a demonstration plant that makes products for potential customers to see. Address: President and CEO, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2568. Gupta, Raj. 1999. What happened to International ProSoya Corp. (IPC) and their soymilk product SoNice (Interview). *SoyaScan Notes.* Feb. 4. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** IPC never went bankrupt or even into receivership. Their SoNice soymilk was doing very well but the quality was inconsistent, so they decided to take it off the market and set up their own packaging facility. It has not come back onto the market since some of the money that was promised to the company was not forthcoming. Therefore a product quality problem became a money problem, which is where things stand now. Lorne Broten is still one of the directors and actively involved in looking for a company to buy a license to manufacture the product. Raj is also involved, since he must approve any license. Raj expects SoNice to be back on the market this spring.

Dusty Cunningham has been back in Victoria, BC, for about a month, after living for a while in the Scotland, where she helped set up a plant that is now making and selling SoNice in the UK. Address: President and CEO, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2569. Thompson (W.G.) & Sons Limited. 1999. W.G. Thompson & Sons Limited (Brochure). Blenheim, Ontario, Canada. 4 p. Feb. 18. 28 cm.
• ***Summary:*** This brochure describes the company, its history (this year is its 75th anniversary), and its various operations. Contents: History. Hyland Seeds. Edible beans. Soybeans. Corn and wheat. Grain marketing. Agri-service. Packaged products. Conclusion. Map of facilities in Ontario, Canada.

"History: In 1924, Wesley G. Thompson had the foresight to see that Ontario agriculture would one day play a major role in the Canadian grain trade. With a single grain

elevator and feed mill, and a solid determination to improve marketing and farm services to Ontario farmers, W.G. 'Tommy' Thompson opened the doors to what has become one of the province's most prominent and progressive agri-businesses.

"Today, W.G. Thompson & Sons Limited has modern branch elevators located across southern Ontario that receive, process and ship grain and edible beans. They retail seed, agronomic inputs, and specialize in domestic and export marketing of grain, edible beans and seed... Exceptional service has always been the trademark of the family-owned business. Today, under the direction of Tommy's grandson Wesley, a third generation of Thompsons are proudly maintaining the 'Growing Tradition.'" A photo shows W.G. "Tommy" Thompson.

"Soybeans: W.G. Thompson & Sons Limited is a recognized innovator in the human consumption soybean market. In order to serve the market with this high protein, low cholesterol and easily digestible product, Thompsons have developed modern sizing and cleaning facilities and strict quality control programs. Extensive research programs improved varieties uniquely suited to this demanding market. World wide, customers depend on Hyland Brand soybeans for their consistently high quality standards.

"Thompsons are also very involved in soybeans for the crushing market. With receiving plants strategically located across Ontario's soybean belt, access to the harvest's bounty is an integral part of Thompson's marketing flexibility. The ability to gather large volumes through other commercial elevators further enhances the Company's position as an oilseed trader. Recently, as Ontario has become self-sufficient in this important crop, the opportunity to consistently export top quality crushing beans allows Thompsons the chance to serve our overseas customers." Address: 122 George St., Box 250, Blenheim, ONT Canada N0P 1A0. Phone: 519-676-5411.

2570. Bernard, Richard L. 1999. Historical list of publicly developed North American specialty soybean cultivars to 1989: Large seeded. Urbana, Illinois. 1 p. Feb. Unpublished typescript.

• ***Summary:*** This list excludes introductions and privately developed cultivars. The varieties listed in this table are Kanrich, Kim, Disoy, Magna, Prize, Verde, Kahala, Kaikoo, Kailua, Mokapu Summer, Protana*, Provar*, Emerald, Grande, Vinton, Vinton 81, Merrimax, Harovinton, and Proto*. * Note from Dr. Bernard. 1999. Sept. 9. "I listed Protana, Provar, and Proto with the large-seeded cultivars, but they are not large seeded. Rather they are specialty varieties released for their high protein content. The category of soybeans with special compositional traits will be a growing category in the future."

Details on the following have not been seen before: Year released–Institute–Cultivar–Maturity Group–Parentage. 1969–Purdue [Indiana], USDA–Protana–II–(Mukden x C1069) x (PI65388 x C1079).

1969–Iowa, USDA–Provar–II–Harosoy x Clark.

1986–New Hampshire–Merrimax–0–Prize x A100.

1989–Ontario, Harrow–Harovinton–I–*Hm Rps1-c* from Vinton x Vinton 81. Note: The italicized text refers to "gene symbols." *Hm* = Not sensitive to the herbicide metribuzin. *Rps1-c* refers to Phytophthora resistance, which Vinton 81 has. Thus Harovinton is not sensitive to metribuzin sensitive but it is resistant to Phytophthora.

1989–Minnesota–Proto–0 [(Chippewa 64 x PI261.475) x PI189.880] x [(PI261.475 x Pridesoy II) x Provar]. Address: Prof. of Plant Genetics (Retired), Dep. of Agronomy, Univ. of Illinois, Urbana, IL 61801.

2571. Bernard, Richard L. 1999. Historical list of publicly developed North American specialty soybean cultivars to 1989: Small seeded. Urbana, Illinois. 1 p. Feb. Unpublished typescript.

• ***Summary:*** This list excludes introductions and privately developed cultivars. For each variety is given: Year released, institute, cultivar name, maturity group, parentage. The varieties listed in this table are Nattawa (Released in 1981, Ottawa, Ontario, Canada), Chico (1983, Minnesota), Canatto (1985, Ottawa), Vance (1986, Virginia), IL1 and IL2 (1989, Illinois), SS201 and SS202 (1989, Iowa), Minnatto (1989, Minnesota), Camp (1989, Virginia), Nattosan (1989, Ottawa), TNS (1989, Ottawa). Address: Prof. of Plant Genetics (Retired), Dep. of Agronomy, Univ. of Illinois, Urbana, IL 61801.

2572. Bernard, Richard L. 1999. Specialty soybean cultivars from 1990 to present: Public institutions, U.S. and Canada. Urbana, Illinois. 2 p. Feb. Unpublished typescript.

• ***Summary:*** This list excludes introductions and privately developed cultivars. For each variety is given: Originating organization name and soybean breeder, cultivar name, year released, typical seed size, and parentage. The organizations and named varieties listed in this table are: (1) Agriculture Canada, Ottawa–Cober: AC Pinson, AC Colibri, Micron, AC Colombe (1995-96–small seeded). (2) Virginia Polytechnic and State Univ. (Blacksburg)–Buss: MFS-551 to 591 (1993-97). (3) North Carolina State Univ & USDA–Carter: Pearl (1994g). (4) University of Minnesota–Orf: Black Kato, Toyopro, UM3 (1995-98). (5) North Dakota State Univ.–Helms: Danatto, Norpro (1996-97). (6) Univ. of Nebraska–Graef: Saturn, Mercury, NE2696LS, NE3496SS (1994-96). (7) Ohio State Univ.–S.K. St. Martin & R.J. Fioritto: Ohio FG1, Ohio FG2 (1994). (8) Univ. of Illinois–R. Bernard: KS-2 (1998). (9) Iowa State Univ. and Puerto Rico–Fehr: 45 varieties, all with names such as HP201, IA 1002, or LS201 (1990-98). Fehr is breeding all types of specialty soybeans (see symbols, below).

Symbols: g = general public release; others are exclusive or by license or contract. p = high protein. lx2 = no lipoxygenase-2. lx0 = no lipoxygenase. Address: Prof. of Plant Genetics (Retired), Dep. of Agronomy, Univ. of Illinois, Urbana, IL 61801.

2573. Bernard, Richard L. 1999. Summary of research & breeding programs for food type soybeans. Urbana, Illinois. 3 p. Feb. Unpublished typescript.
• ***Summary:*** This list excludes introductions and privately developed cultivars. Each entry includes: Originating organization and soybean breeder, food uses (mainly natto and tofu), and breeding objectives. For natto, 100 beans should usually weigh less than 10 gm, whereas for tofu, 100 beans should usually weigh more than 20 gm.

(1) Agriculture Canada, Ottawa–E.R. Cober: Natto and tofu. (2) Agriculture Canada, Harrow–V. Poysa: Natto and tofu. (3) Virginia Polytechnic and State Univ. (Blacksburg)–G.R. Buss: Natto and tofu. (4) North Carolina State Univ.–T. Carter: Natto and tofu. (5) South Carolina State Univ.–E. Shipe: Natto. (6) Georgia State Univ.–R. Boerma & R. Mian: Tofu. (7) Univ. of Minnesota–Orf: Natto and tofu. (8) North Dakota State Univ.–T. Helms: Natto, sprouts, and tofu. (9) Ohio State Univ.–S.K. St. Martin & R.J. Fioritto: Tofu. (10) Univ. of Illinois–R. Bernard: Natto and edamame. (11) Iowa State Univ. and Puerto Rico–W.R. Fehr: Natto, tofu & edamame. (12) Missouri–S. Anand & D. Sleper: Natto and tofu. (13) Univ. of Nebraska–G.L. Graef: Natto, sprouts, tofu, green vegetable [edamame]. (14) Washington State Univ., T. Lumpkin: Edamame.

Small-seeded parents: Camp, Chico, Chohakuzan, Jizuka, Kosuzu, Nattosan, Pearl, Pureunkong, Vance.

Large-seeded parents: Benning, Danbaekong, Enrei, Hyuga, Misuzu Daizu, Nakesennari, Saturn, Shiromeyutaka, Suzuyutaka, Tamahikari, Tanbaguro, Totoshirome.

Edamame parents: Disoy, Magna, Prize, Grande, Vinton 81, Verde, Emerald, LS201, LS301, Saturn. Address: Prof. of Plant Genetics (Retired), Dep. of Agronomy, Univ. of Illinois, Urbana, IL 61801.

2574. Housez, Brita. 1999. Tofu mania: Add tofu to your favorite dishes for optimum health. Regina, Saskatchewan, Canada: Centax Books. A Div. of Publishing Solutions, PrintWest Group. 136 p. Illust. Index. 23 cm.
• ***Summary:*** Contents: Introduction. General tips on how to use and cook with tofu. At a glance: How to use tofu in your favorite recipes. Breakfast, brunch, & lunch. Appetizers, dips, spreads & sauces. Soups & salads. Vegetables & side dishes. Meatless main dishes. Fish & meat main dishes. Desserts.

On the rear cover is a color photo of Brita Housez with a biographical sketch. Address: 3 Evangelista Court, St. Catharines, ONT, L2N 7C3 Canada.

2575. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. OSGMB celebrates 50 years. Feb. p. 1.
• ***Summary:*** "Fifty years ago, soybeans were a new crop in Ontario. Soybean growers decided they needed an organization to represent their interests, and the Ontario Soybean Growers' Marketing Board was born.

"Today, soybeans are the largest acreage crop in Ontario, with expanding domestic and export markets. the OSGMB works on behalf of soybean producers in market development, research, lobbying, negotiating and communications.

"The Soybean Board is planning several special activities in 1999 to commemorate this milestone, including publishing a 50th Anniversary Magazine, launching a new tofu recipe brochure, holding special events at the Annual Meeting,..."

Note: This is the first issue of this newsletter seen that contains color photos or illustrations. A color illustration shows the 50th anniversary logo. A color photo shows the 1998 OSGMB directors, some seated at a table, some standing. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2576. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. Biodiesel update. Feb. p. 5.
• ***Summary:*** "The commercialization of biodiesel fuel in Canada continues to be a goal supported by the" OSGMB. Studies have shown that biodiesel: (1) Is biodegradable and non-toxic. (2) Reduces harmful exhaust emissions (CO, particulate matter, polycyclic aromatic hydrocarbons). (3) Increases fuel lubricity. (4) Raises fuel cetane level.

Discusses: Markets, low-level blends, use of biodiesel in mining vehicles, urban transportation, benefits. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2577. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. Soy foods seminar. Feb. p. 5.
• ***Summary:*** "The Guelph Food Technology Centre (GFTC) is offering a two-day soy foods seminar that may be of interest to soybean growers. Soy Foods: The Next Generation will focus on the future of soy foods, a comparison of soybeans to other functional foods, developing new soy products, compatible soy food ingredients, and regulations surrounding soy foods." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2578. Soyfoods Association of North America. 1999. Soyfoods Once a Day for Life (Portfolio). Washington, DC. 21 inserts. Feb. 15. 28 cm.
• ***Summary:*** The following eight news releases are from the Soyfoods Association: (1) Soyfoods Association of North America celebrates April as Soyfoods Month (2 p.). (2) Soyfoods sales soar with increased consumer acceptance (2 p.). (3) Soyfoods Association of North America–Industry

insiders (ask the experts, 1 p.). (4) Start young enjoying soy (ideas for kids, 1 p.). (5) 1999 Soyfoods Month sponsors (a half-page profile of 11 companies: Archer Daniels Midland, Galaxy Foods Co., Hain Food Group, Lightlife Foods, Inc., P.J. Lisac & Associates, Inc., SunRich, Inc., Tetra Pak, Vitasoy USA Inc., White Wave, Inc., Worthington Foods, Inc., Yves Veggie Cuisine; 6 p.) (6) Soyfoods Association of North America product list (lists soyfood products of 15 companies, many of whom are sponsors of "April is Soyfoods Month," 11 p.). (7) Soyfoods Association of North America member list (52 companies, 1 p.). (8) Dear member of the press, from Allan Routh, President, SANA (1 p.).

Product brochures from the following companies are also included: (9) Sweet Soybeans–Hearty & Natural Edamame, from SunRich. (10) Vitasoy soymilk, (11) Fresh, ready to heat entrées, from Yves Veggie Cuisine. (12) Go Veggie (dairy alternatives), from Galaxy Foods. (13) Lisanatti–The good health cheese alternative, from P.J. Lisac & Associates (Clackamas, Oregon). (14) Trust the protein authority, from ADM. (15) Fact sheet, from White Wave. (16) Nasoya tofu. (17) Veggie recipes, from Galaxy Foods. (18) Westsoy recipes, from Westbrae Natural. (19) Eating healthy can be soy easy, from Lightlife. (20) The change will do you good, from Morningstar Farms. (21) Sweet beans–Vegetable soybeans, from Sno Pac. Address: 1723 U Street, N.W., Washington, DC 20009. Phone: 202-986-5600.

2579. Stuttman, Len; Stuttman, Irene. 1999. Sale of Sycamore Creek Co. to W.G. Thompson & Sons Limited of Blenheim, Ontario, Canada (Interview). *SoyaScan Notes.* March 4. Conducted by William Shurtleff of Soyfoods Center. Followed by a fax of June 19.

• ***Summary:*** On 4 Jan. 1999 Len and Irene Stuttman finalized the deal in which they sold their soynut manufacturing, Sycamore Creek Co. (located in Mason, Michigan) to W.G. Thompson & Sons Ltd. of Blenheim (pronounced BLEN-um), Ontario, Canada. The company name is still Sycamore Creek Co. Legally, it was an "asset sale," which means that a price is negotiated for the equipment, supplies, inventory, trade names, and goodwill, rather than for the stock. They had negotiated the deal for almost a year. Thompson is a quality company with a 75 year history; Len worked hard to get them to buy his company. The Stuttmans are very happy with the sale; they have a two-year consultation agreement to stay on and help with the transition.

The story is as follows: About two years ago, there was a small drought in Michigan and some of Len's traditional suppliers of soybeans were unable to supply all of the identity preserved (IP) soybeans that Len needed. He grew concerned as time passed and he began to call the various state soybean associations to ask for backup sources. Sycamore Creek sells soynuts in little packets to most state soybean associations–with their state name on the packet. One of the people he called was Fred Brandenburg of OSGMB in Canada. Fred gave Len the names of various Ontario companies that could supply IP soybeans. One of these was Thompson & Sons. Thompson also sells organically grown food-grade, light-hilum soybeans to East Asian soyfoods manufacturers, but the organic soybeans are generic; they don't keep individual varieties separate. Len contacted Thompson and they supplied him several varieties; Len placed his first order on the summer of 1997. Len found that the Ontario soybeans made better soynuts and soynut butter than those from his traditional U.S. suppliers, and that there were more varieties from Ontario that were suited for his process–and the price was competitive–delivered at Len's plant in Michigan. He found himself ordering more and more soybeans from Ontario. One year ago, Len was getting at least 50% of his soybeans from Ontario; this percentage has steadily increased. Len developed a good working relationship with Mr. McVinty, Thompson's export manager. Thompson has a Food Products Division (headed by Mr. O'Brien), which sells various types of beans–including non-soy beans. Then, in April 1998, he got to meet Wes Thompson, who is president of the company. He explained to Wes that Sycamore Creek was an expanding business that was using large amounts of IP soybeans supplied by Thompson. He showed Wes samples of products made with his beans; Wes loved the candy-coated soynuts. He ate them non-stop as Len was making his pitch for a joint venture, merger, or sale of Sycamore Creek. Len suggested that Thompson start to look more at value added products–such as soynuts–and vertical integration. This approach would give Thompson a greater return on investment. "And I will do everything in my power to make you successful." After this first talk, Thompson people came to Michigan (they flew in using their own plane) and Len and Irene went to Ontario to discuss the matter more. The business is owned by the Thompson family–good solid farm folks–and the grandchildren are very involved in the business. There was no pretentiousness. The "chemistry" was good. West Thompson is a bit of a visionary. The deal with W.G. Thompson & Sons was finalized in a humble storeroom (with cobwebs in the corners) at the Dansville Country Club–a place with excellent food, frequented by local farmers.

The Stuttmans' first pilot plant was in Dansville, which is only 7 miles from Mason, Michigan. He introduced the Thompsons to the farmer who gave them their original space–in a barn–for almost a year; there they did all of their experiments (their research was conducted in an abandoned milk parlor) and began to sell their first commercial soynuts. Then they expanded to a little out-building, an extension of the barn. The original address of the pilot plant

which made their first soynuts (named Solar Soya) was Diehlfields, 905 Jackson, Dansville, Michigan 48819. Irene still has the notebooks with dates and results of all the early work.

By the way–A taste panel of various soyfoods conducted with kids in Sarasota, Florida, found that the kids liked candy-coated soynuts (similar to M&Ms) the best of all soyfood products sampled.

Ontario was smart; they started building the infrastructure for IP soybeans about 18 years ago. Ontario has also invested a great deal of time, money, and effort into breeding non-GMO food-grade soybeans for food uses–sold primarily to Asia.

The new owners, W.G. Thompson & Sons, formed a new corporation named Sycamore Creek Co. INARI, Ltd. continues to exist. All of Sycamore Creek's former employees now work for Thompson. Thompson has sent in a woman, Tina Hernandez, who is the general manager; she is very good at business administration and accounting. She handled the foreign trade department at Thompson. Tom Brown in still in charge of the food processing work; now a marketing manager is needed. If Michigan can supply IP organic soybeans at a competitive prices, then Sycamore Creek is free to buy from Michigan. The contracts with T&G are still in effect. INARI Ltd. has a royalty agreement with W.G. Thompson & Sons for the sale of roasted products, and one with The Soynut Butter Company for sales of soynut butter. The numbers are confidential, but clearly the Stuttmans have a financial interest in the success of these companies and their products.

INARI Ltd. started with about ten shareholders who invested $60,000. Len and Irene are in the process of redeeming all the shares of their minority shareholders so that they will be the sole shareholders. The original shareholders, all of whom were friends and family that shared the Stuttmans' vision, held onto their stocks and each of them made money on their initial investment.

Thompson & Sons has a young soybean breeder who is excellent; they send their soybeans to the provincial government for compositional analysis. But they do not have a food laboratory or a spectrograph–so they have no way to analyze the results of their breeding program in terms of food applications. Thompson is investing a lot of money in moving the Sycamore Creek plant to Stockbridge, Michigan (15-20 miles away, in the same county, closer to Ann Arbor), and tripling its capacity. The deal on the building is scheduled to close on May 19. He would like to buy new oil roasting equipment; Stein is the maker (in Ohio) of a revolutionary new roaster named Thermofin. The big problem is: Who will supervise the construction of the new plant? Len needs a counterpart. Thompson is now in the midst of other big investments–one in Ontario and one in Minnesota.

Len and Irene retain the rights to use the INARI Ltd. name, as in a Third World country–but they cannot compete in North America. Len started this company in the 1970s with his focus on Third World countries. "Soy to the World." He still thinks that soynuts are most cost effective than cereal-soy blends–if you count the cost of fuel, time, etc.

They have both kept virtually all the documents generated by or related to their soynut company from the day it started. Irene will discard those which she considers less important and keep the rest in a scrapbook. Her maiden name was Whittemore, and ancestors on the Whittemore side were well known entrepreneurs in Michigan history, with a place in the Bentley Historical Library at the University of Michigan in Ann Arbor. Her great great grandfather was secretary of state for the state of Michigan, and he started a lumber mill, a bank, and a general store. Her family is also distantly related to Joseph Smith of Mormon and Salt Lake City, Utah, fame. Irene has been the main person running the business in recent years. She would like to donate INARI's records to such a library if they are interested. Address: President and CEO, Sycamore Creek Co., 200 State St., Mason, Michigan 48854. Phone: 517-676-3836.

2580. Stuttman, Len. 1999. What does the word "food-grade soybeans" really mean? (Interview). *SoyaScan Notes*. March 4. Conducted by William Shurtleff of Soyfoods Center. Followed by a fax of June 19.

• ***Summary:*** Len uses the term "food-grade soybeans" a lot. He may have learned it from people in Canada. For making soynuts, he needs special varieties of soybeans that are high in protein, low in fat, have good texture, good taste, and retain their integrity during processing (the seedcoat or hull stays on–does not slough off–during the entire soaking, cooking, and deep-frying process). A soybean with a thin seedcoat usually has poor integrity. Actually, he must try to find a variety in which he can get as many of these qualities or specifications as possible at a competitive price. This is complicated; the only way to test a particular variety is to put it through the process. Moreover, a variety (such as Sapphire) that works well one year may not work so well the next year. Or a variety grown at one latitude that works well may not work so well when grown at a much different latitude. Soybeans grown at northern latitudes generally work better than those grown to the south. Not all of Canada's "food-grade soybeans" work well for Len's particular application. For example, manufacturers of tofu and soymilk want high protein dispersibility in water. Len wants low protein dispersibility, so that protein is not lost during soaking and cooking.

Thus within this broad category of "food-grade soybeans" each food application has somewhat different requirements. Actually, it gets even more complicated.

When most people say “food-grade soybeans” they are usually talking about large-seeded, clear-hilum soybeans–most of which have a Japanese pedigree. Yet makers of natto and soy sprouts want small-seeded soybeans.

Back in the days when public soy varieties predominated, one variety (such as Corsoy) might be around for years and years. But now that most varieties originate from private seed companies, they change more often and they are not generally bred for food use–except in Canada. W.G. Thompson & Sons has a young soybean breeder who is excellent; but they do not have a food laboratory. Address: President and CEO, Sycamore Creek Co., 200 State St., Mason, Michigan 48854. Phone: 517-676-3836.

2581. Stuttman, Irene; Stuttman, Len. 1999. Re: Sale of Sycamore Creek Co. to W.G. Thompson & Sons Ltd. in Canada. History of INARI, Ltd. Letter to William Shurtleff at Soyfoods Center, March 9–in reply to inquiry. 1 p.
• ***Summary:*** Answers a variety of questions asked by William Shurtleff following a phone conversation. Address: INARI, Ltd., 200 State St., Mason, Michigan 48854. Phone: 517-676-3836.

2582. Gupta, Rajendra P. 1999. Reverse centrifugal filter. *U.S. Patent* 5,882,529. March 16. 5 p. Application filed 12 May 1997. 4 drawings. [1 ref]
• ***Summary:*** Equipment for continuous separation of soymilk (liquid) from okara (solids, sludge). Address: 9 Veery Lane, Ottawa, ONT, K1J 8X4 Canada. Phone: 613-745-9115 or 613-744-4401.

2583. Kessler, Jon. 1999. Re: Unisoya of Canada, and vacuum packaging bulk tofu hot. Letter to William Shurtleff at Soyfoods Center, March 16. 1 p. Typed, with signature.
• ***Summary:*** Note: According to the *Soya & Oilseed Bluebook* (1999, p. 144) Unisoya, Inc. is now an affiliate of Berero Inc. (Tonatur Foods Inc.) and located at 185 Voyer St., St. Isidore Co., Laprairie, Quebec J0L 2A0, Canada. Contact: Jill Renger. Plant manager: Real Beaulieu.

Jon recently met and talked with Gilles Ranger (sales manager) and Bernard Beaulieu were recently in Virginia looking at the BMI (Bean Machines Inc.) centrifuge at Twin Oaks Community Foods (where Jon was manager before starting his own business). Unisoya has an interesting product line (as described on the enclosed business cards). They are presently making about 4,000 lb/day of tofu, 7 days a week, and are planning on expanding their plant. They package their bulk tofu (which is their best seller) in bulk vacuum pouches of 5 lbs per pouch (20 lb per box). Jon was most interested in the fact that they vacuum pack this tofu hot; they do not cool the tofu after it is made before vacuum packing. Then they pasteurize the tofu in its pouch at 205ºF and get a 50 or 60 days shelf life! Jon is considering visiting them this summer.

The enclosed business card, written in both French and English, states that M. Réal and Bernard Beaulieu are the proprietors / owners. The company slogan is: “The true & original.” They sell tofu as follows: (1) In boxes of 225 gm, in natural or fines herbs flavors. (2) In packages of 454 or 300 gm in natural, fines herbs, seaweeds, vegetables, soft, and organic. (3) In vacuum packed boxes of 20 lb. (4) In slices or cubes. They also sell soymilk, and do private labeling.

Update: Talk with Jon Kessler. 2000. Oct. 3. His company, Sunergia, now has all its tofu made by Unisoya in Quebec, Canada, and vacuum packed. Address: Founder and owner, Sunergia Soyfoods, P.O. Box 1186, Charlottesville, Virginia 22902. Phone: 804-970-2798.

2584. Johnson, Eve. 1999. When is a hot dog not a hot dog? The soybean veggie version may be healthier, and it doesn’t have a ‘dark side’ like a classic wiener. Or does it? *Georgia Straight (Vancouver, BC, Canada).* March 11-18. p. 49.
• ***Summary:*** There are now two Yves Kitchen restaurants in Vancouver. Stylish, even chic, they are “the world’s first soy-based fast-food restaurant chain.” Yves on Eleventh, in Vancouver, specializes in veggie hot dogs. But are veggie wieners really healthy? That depends on how you feel about eating foods made from genetically engineered soybeans. Yet served with all the trimmings, “Yves veggie dogs taste just like the happy-times wieners of your childhood.” Moreover they are healthier, with almost no fat, half the sodium, and more protein than meat wieners.

Yves Potvin comes from Sherbrooke, Quebec. At age 28, and already a chef, he started making veggie hot dogs upstairs from a Dave-on-Meat store in Vancouver. Now he employs about 220 people in a brand new corporate headquarters in Delta, a suburb just south of Vancouver. Each week the company makes 125 tonnes soy-based meat alternatives. 30% of that is consumed British Columbia; the rest is exported to the USA or the rest of Canada. Four photos show Yves on Eleventh.

2585. Murrils, Angela. 1999. Tofu can be both tasty and tantalizing: March is the month to celebrate one humble derivative of the soybean, which is exalted at a new Kits eatery. *Georgia Straight (Vancouver, BC, Canada).* March 11-18. p. 49.
• ***Summary:*** April is “Tofu Month” in Canada. At a dinner cohosted by the Pink Pearl Chinese Restaurant and Sunrise Soya Foods, the writer ate course after course of “terrific Chinese food–smoked mushroom roll, Rainbow seafood soup, and, the kicker, a satanic chocolate mousse–all of it based on tofu.” She became a convert. When the Joe family began making tofu 43 years ago, their only market was Chinatown. Lifestream, which used to be at Bernard Street

and West 4th Avenue, was the first non-Asian store to carry it. Now soy products are everywhere.

Now Yves Potvin, the chef from Quebec, has started a restaurant serving meatless food on West Fourth Avenue. The food is great. At the end of April, he plans to open a second restaurant, at Granville and West 11th Avenue.

2586. Brown, Allan. 1999. Brian Stutt of Gilford Marketing in Canada is interested in Buying Noble Bean and taking tempeh to mainstream markets (Interview). *SoyaScan Notes.* March 24. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Allan and Susan Brown have put a price tag of $300,000 on their company but they do not really want to sell it; they like the work. They sell about $50,000 of tempeh a year and about 40% of that ($20,000) is profit. The company is worth about $100,000 on the books. Instead of selling the company, Allan plans to work as a consultant (at $150/hour) for Brian to teach him about how to make tempeh; in exchange Brian will agree not to compete with Noble Bean in the organic market. Brian now buys Noble Bean tempeh from a distributor for about $3.25/kg; he wants to create a larger tempeh factory to get the price down.

Brian now works with a company named Commensal which is big in fresh entrees (both vegetarian and non-vegetarian); Brian is helping them get into frozen entrees to reach bigger markets. He is also talking with airlines about serving these meals. Cara Foods owns Beaver Foods, which is a huge distributor to supermarkets. Two companies that are big in frozen vegetarian entrees and private-labeled vegetarian products (such as meatless franks made by Yves) are President's Choice and Too Good to Be True–apparently both owned by the same people.

Allan has discovered one trick about making better tempeh; he blows air through the soybeans to reduce their moisture content before dehulling them. This makes it easier to dehull in a mill, and it also improves the quality of the final tempeh–for some reason that Allan does not understand clearly. Address: Co-founder, Noble Bean, R.R. #1, McDonalds Corners, ON K0G 1M0 Canada. Phone: 613-278-2305.

2587. HempNut, Inc. 1999. "The soybean of the next millennium" (Ad). *Vegetarian Times.* March. p. 34.

• ***Summary:*** This one-third page color ad shows a can of HempNut, which is hulled hempseed. Containing 31% protein, HempNut has zero THC, and tastes like sunflower seeds. "Just one taste and you'll never eat whole hempseed again!" For more information contact "Richard Rose, Chief Hemp Nut. (707) 527-8113, or info@TheHempNut.com, or www.TheHempNut.com."

Note: Richard Rose also runs the Rella Good Cheese Company, which makes a variety of cheese alternatives.

Talk with Richard Rose. 1999. March 8. He buys dehulled hempseeds from either Canada or Europe. 1998 was the first year that farmers in Canada were licensed to grow hemp; only 6,000 acres were grown, so prices are still high due to small-scale production. Dehulled hempseeds are not viable (they will not sprout), so they do not need to be sterilized before being imported to the USA. Many entrepreneurs are now selling hempseeds with the hulls on. This is a bad idea for two reasons: (1) The hull is very hard–like eating a walnut or almond with the shell still on. (2) Traces of THC adhere to the hull and enter the bloodstream. Many people who have eaten whole hempseeds or consumed hemp oil risk going to jail or losing their jobs since blood tests showed them to have traces of THC in their blood. Richard has invented a machine that is better than any other for dehulling hempseeds. He has started a separate company, HempNut, Inc., to include all his work with hemp. Address: [Santa Rosa, California]. Phone: (707) 527-8113.

2588. ProSoya Inc. 1999. VS40 operation (Color videotape). 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. 14 minutes. March.

• ***Summary:*** This excellent color video (in NTSC video format), is professionally produced and narrated, with nice background music. Introduced in March 1999, it describes the operation of ProSoya's VS40 SoyaCow, which makes 40 liters of airless cold-grind soymilk per batch. Use of the soymilk to make tofu (using a forming box and cloths that come with the machine) is also described. The video narration begins: "The VS40 SoyaCow system is a small and economical batch processor for producing highly nutritious, non-beany soymilk with excellent soluble protein yield. Easy to operate and maintain, this system uses an airless cold-grinding process developed by ProSoya Incorporated, world leaders in advanced soymilk technology. The grinder-cooker is the heart of the system. Powered by a single-phase one-horsepower motor..."

Talk with Raj Gupta of ProSoya Inc. 1999. May 30. This color video was produced in-house by a man named Seth Gaurav, who is a native of Bombay, India, and who studied cinema at the Moscow Film School in Russia for nine years (1986-95); he won a scholarship from the Russian government. This is the first video Gaurav produced for ProSoya. ProSoya also has a Russian-language version and also videos for its larger soymilk systems. The company's first video was produced in late 1993 or early 1994. Address: Ottawa, Ontario, Canada.

2589. Conquergood, George. 1999. History of work with soyfoods and vegetarianism. Part VI. The peak month (May 1998) and on the way down in 1998 (Interview). *SoyaScan Notes.* May 10. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** When did SoNice go off the market? The company's peak month in sales was May 1998 and they couldn't fill all their orders. May 12, 1998 was their last day of UHT aseptic (shelf stable) production. That was the last day that Farmland produced any SoNice soymilk in a shelf-stable package for them. Until July 1998 they continued to produce refrigerated product on a scattered basis–off and on, when they could–and when Farmland didn't dump it all down the drain. Then came that disastrous day in July 1998 when Farmland dumped a huge amount of product–and that was the straw that broke the camel's back. That was the last day any type of SoNice soymilk was made. So the company withdrew all SoNice products (soymilk and yogurt) from sale. They sent a notice to the brokers and the trade that they could not support any more sales; they were withdrawing all products from trade until they could reorganize the company. They were still trying to build the plant in Vancouver, and they were trying to find the money and the people to partner with. They had hoped to settle everything down, to sell product from their warehouses–which they did. Since they had five warehouses (four with shelf-stable product and one with refrigerated) across Canada and the United States, SoNice continued to be available in retail stores until the end of 1998. Moreover, the SoNice distributors all had warehouses full of products, and the retail stores had products. The pipeline was nicely filled in May, but by the fall of 1998 it was becoming difficult for consumers to find products, and it pipeline was empty by early 1999.

George believes that some companies are already using equipment (that they built themselves and keep behind closed doors) that infringes upon the ProSoya patent. It is hard to catch such people; you basically have to send in the "patent police" and catch them red-handed. ProSoya allowed many people to go through their soymilk manufacturing plants, and examine their equipment and process. These include Steve Demos, Ted Nordquist, and (in late 1997 or early 1998) Danilo Callewaert (Director, R&D, Alpro, Wevelgem, Belgium) and Guy Huybrechts (Managing director, Vandemoortele, Soyfoods Division, Alpro). Note: In March 1995, Philippe Vandemoortele, head of Alpro, announced that he was leaving Alpro to work on a new idea he had. He took one of Alpro's most experienced researchers with him. His last words: "I shall return." Continued. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2590. Wright, David E. 1999. The farm chemurgic movement and its influence on the modern world, including laying the foundation for current biotechnology research (Interview). *SoyaScan Notes.* April 14. Conducted by William Shurtleff of Soyfoods Center. [25 footnotes]

• ***Summary:*** Discusses: Eugene Gressley, cowboy entrepreneur who buys archival collections for the University of Wyoming and maneuvers to raise money to get a new building to house his collections. David's 1986 visits to and research in these archives which were housed in a Quonset hut outside of Laramie. Francis P. Garvan, chemurgist with great social influence. Buffum, CEO who worked for Garvan. Harry E. Bernard. Billy Hale, who married Herbert Henry Dow's daughter and wrote his first article on chemurgy in 1926 in Henry Ford's *Dearborn Independent.*

Note: Herbert H. Dow (lived 1866-1930) was an American chemist and manufacturer. Born in Belleville, Ontario, Canada, he founded the Dow Chemical Co. in 1897 near Midland, Michigan, and developed and patented over 100 chemical processes. Midland, Michigan, is slightly more than 100 miles northwest of Dearborn, Michigan–home of the Ford Motor Co. When Herbert Dow died in 1930, his son, Willard H. Dow, became head of the company. Willard was active in the National Farm Chemurgic Council during the 1930s and 1940s.

Leo Christensen. Edward J. Muhs–the Chemical Foundation's historian, how power alcohol destroyed the Chemical Foundation the important book *Industrial Fermentations,* by L.A. Underkofler and Richard J. Hickey (1954, New York: Chemical Publishing Co.). How Hale and Garvan laid the foundation of modern biotechnology research by creating a triad between university researchers, business, and government. Address: Asst. Vice President for Research, Michigan State Univ., Room 246 Administration Bldg., East Lansing, Michigan 48824. Phone: 517-355-2180.

2591. Hart, Sharon. 1999. History of Dyshar Farms, makers of Real Roasted Soys in Canada (Interview). *SoyaScan Notes.* April 20. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Sharon owns and runs a soybean dry-roasting facility for animals at Blythe Brae Farms located in Woodstock, Ontario, Canada, on Hwy 401, and closer to London than to Toronto, Ontario. Woodstock is on about the same latitude as Niagara Falls (New York) and Milwaukee (Wisconsin). She farms about 2,225 acres, including 1,000 acres of soybeans. Her husband is a hog farmer. For some years it has been very popular for Ontario farmers to feed their hogs and dairy cattle soybeans that have been dry roasted and sometimes flaked. She uses a dry roasting process (with a flame roaster)–not an extrusion cooker. The soybeans smell wonderful when they come out of the dry roaster, and the animals (and farmers) love them like they would candy. She creates bypass protein for dairy cows by holding the soybeans at a high temperature for 30 minutes. Farmers use roasted flaked soybeans (slightly crushed) for top dressing (where they put the soybeans on top of the

feed) but whole soybeans when they feed TMR (total mixed ration), since the whole soybeans hang onto their hulls better. In 1986 she first heard comments from dairy and hog farmers at her custom roasting facility that they liked to munch on roasted soybeans. Feed dealers put a little dish of roasted soybeans out so that farmers could test the quality of the roasted beans–and munch on them. It was not until nine years later, in 1995, that she and her friend and partner-to-be, Diane, decided to make roasted soys for human consumption. Their first products (five flavors of Real Roasted Soys) were introduced shortly before Christmas of 1995, in Woodstock Market. At that time they did not have a company name yet or any of their own equipment. They used custom-roasted soybeans to test the market. Less than half a year later they introduced two more flavors: Sour Cream and Onion, then Maple Syrup Coated, followed in 1997 by Honey Coated and three flavors of organic. Sharon prefers the generic term "Roasted Soys" or "Roasted Soybeans" to the term "soynuts."

They buy their soybeans cleaned from various seed companies. Their roasted soys are oil roasted [deep-fried], in a facility located about 1½ miles from their dry roaster. They have developed an innovative process of treating the soybeans before and after frying that makes their oil content about the same as it is before frying [5 gm of oil per 30 gm of product = 16-20% oil]. This is not a patented process. They are just a cottage industry. Thus, they get the nice flavor that goes with oil roasting without the calories that usually accompany it. They also use only non-hydrogenated oil (soybean oil) for their frying. They believe it is healthier than hydrogenated oil. Sharon's background is in human nutrition, and her partner, Diane, is a dietitian; they both want a healthy, high-quality product–even though the shelf life of the soys and the oil will not be as long as if they used hydrogenated oil. Their focus is on both good nutrition and good flavor. They also want to use whole beans, since the hulls provide valuable dietary fiber. Sharon is now doing a lot of research on soybean varieties to find those that grow and yield well in Ontario and also make soynuts that have a good appearance, flavor, and texture. This is her first year growing small test plots of different varieties on her farm–right next to her roasting facility. Dyshar Farms has received a lot of help and support from the Soybean Board in Ontario (OSGMB). Their company also does private labeling and roasts soybeans for other companies who want to season their product and sell it under their own label.

Since Sharon roasts only soybeans [no peanuts or other seeds] at her Dyshar Farms, she can guarantee that the plain, salted, and seasoned flavors are absolutely free of any trace of peanuts. However since she sends the three candy-coated flavors to another company to be enrobed, she cannot guarantee that these are 100% peanut free. In their chocolate-coated product they avoid the use of coconut oil in the chocolate; even though it would make the chocolate last longer, it would also raise the saturated fat content.

Their logo, in different colors, forms the center of each of their labels. For example, the honey coated soys have a yellow label, the chocolate have a red label. Dyshar Farms has a new web site: soys.com. Address: R.R. #3, Woodstock, ONT N4S 7V7, Canada. Phone: 519-537-2199.

2592. Conquergood, George. 1999. History of work with soyfoods and vegetarianism. Part I. 1976 to 1994 (Interview). *SoyaScan Notes.* April 21. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** George was born on 1 Dec. 1946 in Toronto, Ontario, Canada. He went to high school in Toronto but did not graduate, and he never attended college. "I attended the school of hard knocks." He dropped out of high school at age 15 he began to work full-time. At age 17 he went to work for a textile firm until he was age 20. Then he started his own business in the fields of textiles and clothing. In 1967 he married Wendy Lynn Richardson–who was born on 27 Sept. 1948. In 1973 he received knowledge from Guru Maraji (via Guru Charanan) in Toronto, became his disciple, traveled throughout the United States and (in 1973) to the Houston Astrodome [in Texas] with Guru Charanan, and started a vegetarian diet and vegetarian restaurant. In 1977 he was one of the founding partners of Jolly Green Garden, a vegetarian restaurant in Toronto. He called it "Guru Maraji's restaurant" because many of the employees and customers were disciples of Guru Maraji. There he first got involved with soyfoods. He bought tofu and used it to make various products, such as patties, dressings, etc., which were served in the restaurant. George has been involved with soyfoods for more than 20 years, starting in Toronto.

In early 1979 George and his family moved to southern Alberta. He went to work for the Canadian federal government helping a group of native Blackfeet people there. He set up a company named Pe-Kun-nee Garments that manufactured textiles (garments), put 300 women through a training program, and ran it (with the title of General Manager) for about 4 years. George still has the full-beaded outfit and feathers that he got from the Blackfeet people he helped.

In 1984 George and his family moved to Saskatoon, Saskatchewan, where he started a computerized embroidery business. His wife and three children still run this as a family business. Today his company is one of the top software development firms in North America for computerized embroidery. He worked for a company named Jeffrey E. McPherson, headquartered in Nottingham, England, with North American offices in Greensboro, North Carolina and in Canada; George worked for the North Carolina company. They held the worldwide distribution rights for an embroidery machine made by a Japanese company named Barudan (pronounced buh-ROO-dun) who

pioneered the electronic embroidery machine from Japan. The ancient Jacquard looms, which were programmed with punch cards, originated in Switzerland [sic]–which is why we refer to "Swiss embroidery." [Note: The French inventor, Joseph-Marie Jacquard (lived 1752-1834) invented the Jacquard loom at Lyons, France, in 1801 and was awarded a patent and medal by Napoleon in 1804]. The Japanese copied these looms. George was a salesman for their equipment, and he developed a collection of baseball caps because he was one of the first people to sell caps–whether it be importers of blank caps or embroiders of finished caps. George even called himself Captain Capman. He went around and set up embroidery companies to whom he sold his embroidery equipment (from Barudan in Japan) all over western Canada. George was one of the first people to embroider a baseball team insignia direct onto the blank hat–replacing the old crest that was stuck on the hat. It was much classier, and now its the only way they do it.

In 1992 he started another gourmet vegetarian (actually vegan) restaurant, this time named Sweet Carrot Café, located at 702 14th St. East, Saskatoon, Saskatchewan S7N 0P7. Actually, George bought the building for his embroidery business, then opened up a corner of one building on the corner as a lunchroom for his staff. It was an historical building, with three buildings in one. George bought an espresso machine for his lunchroom. Passersby thought it should be a coffee shop. George lined the walls of his lunchroom with his collection of embroidered baseball caps. He soon converted the lunchroom into a coffee bar, which he named it Caps Coffee Bar. A popular men item was Cap-puccino! There was a grand piano in the dining room. It was probably the only vegetarian or vegan restaurant ever to be written up in *Where to Eat in Canada*–two years in a row. In those days most people thought of vegetarian restaurants as places where hippies with beards and long hair sat on picnic benches and ate granola bars. Most people were afraid to eat in such places, so George made his restaurant into a fine dining room. One of the main focuses of George's life since the 1970s has been vegetarianism; his wife is a vegan and teaches tai-chi. In the restaurant George made his own tofu, soymilk, and related products, such as spreads, dressings, etc. In the early days, he made these products in the old fashioned way. The firm nigari tofu was very good tasting but the soymilk had a pronounced beany flavor. He was so busy, and making all these foods was such a chore, that he began looking for other technologies to expand his production. One day in early 1992, at about the time Raj Gupta started publishing his *Soya Cow Newsletter,* a young lady from the United Way in Ottawa came into the restaurant and commented on his organic tofu sandwich. She also tried his soymilk and told him about a soymilk making machine named the Soya Cow, developed by a company named ProSoya in Ontario. George asked for more information and the lady sent him a copy of the newsletter. George immediately phoned Raj Gupta, the inventor of the machine, and was on the next airplane to Ottawa. He ended up buying the only small Soya Cow (SC-20) Raj had. Articles about George, his stylish restaurant, and his new Soya Cow appeared in two early issues of the *Soya Cow Newsletter* (Jan/March and April/June 1993–Vol. 2, Nos. 1 and 2). He used the Soya Cow to make soymilk, which he sold at his restaurant–starting in early 1993. This was the first commercial soymilk ever produced by a Soya Cow. He sold the soymilk in 1 liter glass bottles, with the Soya Cow logo printed directly on the glass on each bottle. He and Frank Daller developed the bottle. So the name of the soymilk was "Soya Cow" and it was sold in seven flavors–including maple, chocolate, vanilla, original, chocolate-peanut butter, and nog (a delicious egg-nog alternative made only at Christmas). Dusty Cunningham and Lorne Broten were both patrons of George's vegetarian restaurant in Saskatoon. A romance soon developed and they were called the "love birds." George was thinking about opening a winery in his restaurant. Since Lorne was an accountant, George started working with him on a business plan for the winery in about 1994. George liked Lorne and hired him as his bookkeeper and accountant for his two businesses–embroidery and vegetarian restaurant.

Soon, within his restaurant (which consisted of three buildings in one), George converted his Caps Coffee Bar into the SoyaCow Health Bar Deli, where he sold at least five soy products, both as part of the menu and for takeout: Soymilk (in six flavors), soy ice cream (many flavors, always changing), soy yogurt (several flavors), tofu, and Soyanaise. He also carried Yves Veggie Cuisine. He used his car to deliver some of the soymilk he made to three local stores; he never delivered his other soy products from the restaurant. He carried the glass bottles in milk crates. Continued. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2593. Conquergood, George. 1999. History of work with soyfoods and vegetarianism. Part II. Starting a soy business and creating many more companies–1994 (Interview). *SoyaScan Notes.* April 21. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Continued: The winery idea never worked out, but the soyfoods part of the restaurant grew until George decided to start a new company making soyfoods. In 1994 he closed the restaurant, moved out all the soya equipment to focus on doing a soy dairy in Saskatoon, and leased the empty restaurant buildings others who wanted to used them for a new and different restaurant. George and Lorne worked together on the business plan for this new soy dairy company which was going to be called Soybé's Non-Dairy. In 1994 George was already advertising his forthcoming

soymilk business and products in the local papers; the products also going to be named Soybé's Non-Dairy, and sold in several flavors. He planned to discontinue his glass bottle and start packaging in gable-top cartons. He found an old dairy in Saskatoon that agreed to sell him their gable-top packer. This would have been the first fresh gable-top soymilk in North America. George had finished his business plan and blueprints, had selected a building, and was getting the building permit–when Lorne learned that Raj Gupta had prototyped an SC-100, which could make 100 liters of soymilk an hour. This changed everything! Lorne now wanted to do a much larger project and buy the rights to the SC-100. George said no, it was too expensive. But to Lorne, money was never a problem. Finally George agreed, so they never built Soybé's. Instead Lorne formed many new "vehicles" for raising the necessary funds to accomplish what *he* wanted to accomplish. His primary interest was in his family's water company in British Columbia (long owned by his family, including his son and brother-in-law), and he saw the opportunity to use the soy business as the catalyst to stir interest in and raise funds for the water company–so that he could bail out of it. Ward Yeager is an investment counselor and broker is Saskatoon. Lorn went to Ward and asked him to raise the money. Ward had no particular interest in soy (though his interest grew as time passed), but he (and a relative of his) wanted to own a chain of coffee franchises–similar to but better than Starbucks Coffee. So he began pushing Lorne to include a coffee business in his plans.

Dusty was not one of the company founders or original shareholders; she was in Europe at the time because her daughter was ill. The original founding partners were George, Lorne Broten, and Ward Yeager. The original corporation created by Lorne was extremely complicated. The original corporation formed for the purpose of raising capital (money) was named Royce Everest Enterprises (REE–as in "Rolls Royce" and "Mount Everest"), the major shareholder equity company which raised capita; it was a shell consisting of three different divisions, with a total of eleven companies. Each of the three founders put up money, but in different amounts and each owned shares. In one of the companies (REE), the shares they received was proportional to the money they invested. REE owned 40% of each of the three divisions; the other 60% was owned by the founders.

The three divisions were (believe it or not) a water business (which Lorne sold to REE; it subsequently lost lots of money), a coffee business, and a soy business. Each of those three divisions was owned 40% by Royce Everest, and contained three companies: A management company, a holding company, and an operating company (which actually made products). In the soy business these three were Pacific ProSoya Management, Soybe's Holdings (owned 60% by Pacific ProSoya Management and 40% by Royce Everest), and Pacific ProSoya Foods Inc. So if you wanted to invest in the company, and you liked the idea of soy, then you had to invest in Royce Everest, because it was the one that was selling shares. But you were also buying into water and coffee–even if you weren't interested in those businesses. Ward could sell anybody anything–and he was good at it.

The three founders owned equal shares of a company named Pacific ProSoya Management, which owned 60% of the soy business; this 60% ownership did not cost them any money originally. The other 40% of the soy business was owned by people who invested money in it.

Back to Dusty: Because of her original involvement in Saskatoon, and because of her association with Lorne in the early days, and because it was basically Dusty's interest that drove Lorne to become involved with George and the work with soy–she was allowed into the company in the early days. Since she didn't want to have anything to do with coffee or water, she didn't want to buy shares in Royce Everest, but she did want to invest in the company. So Lorne formed another company that also owned shares in Soybe's Holdings. Note: Only accountants and lawyers like this kind of stuff. Then each of the three founders, in their generosity, gave to Dusty a small portion of their shares in Pacific ProSoya Management, though in the end she owned fewer shares than they did.

They raised money again and again, going through two full prospectuses, some rights offerings, first under Pacific ProSoya Foods, then to the shareholders under International ProSoya Corporation, then went back with another "rights offering." Then, when they "ran out of companies to raise money under," they started to sell shares in Pacific ProSoya Management (PPM)–which had a lot of special rights (that the normal common shareholders didn't have in terms of other revenue streams) and owned 60% of the main company. These shares had a higher value. First thing was a rights offering to the shareholders who could put in money to keep their percentage constant. George was not in a position to put in as much money as Loren (who received a big salary) and Ward (who had earned big commissions from raising money). So George allowed Dusty to buy the extra shares that he could have purchased–to increase her percentage ownership. Then they sold shares in PSM to other people as well–further diluting their shareholdings. So in the end, Loren and Ward each owned slightly more shares in PPM than George, who owned slightly more shares than Dusty in PPM. Continued. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2594. Conquergood, George. 1999. History of work with soyfoods and vegetarianism. Part III. Building Pacific ProSoya Inc. and making the base for Silk–1994 to 1996

(Interview). *SoyaScan Notes.* April 21. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Continued: George (and Lorne) moved to Vancouver, BC to build a soymilk plant, launch a new soymilk product, and dedicate himself 100% to the soy business; his wife and family stayed in Saskatoon, where they all work in the family business. He is still married, he communicates with his wife and family daily, and they visit one another from time to time.

In Vancouver George and Lorne set up a new soymilk company named Pacific ProSoya Foods. The company had a license to make and sell soymilk, soymilk products, and soymilk equipment in British Columbia and Alberta in Canada, plus Washington, Oregon, and parts of California in the United States. In April 1995 the SC-2000 started to produce soymilk on a trial basis, but it took 8 months to debug the system. Pacific ProSoya's first commercial soymilk was sold in Jan. 1996 to Ted Nordquist of TAN Industries, who used it to make Silk brand soymilk for White Wave in Boulder, Colorado. George started the company, and he and Dusty basically built it up; Lorne, who had been George's accountant, put together the financing.

When IPC started, the company had no plans to make its own soy products. Rather it planned to make soymilk base and supply it to the dairy industry. So selling soy base to Ted Nordquist, their first customer, fell within this general concept. But Ted wasn't buying that much soymilk. George is quite sure IPC never shipped him more than one tanker of soy base (containing about 10% solids) a week; one tanker holds 6,000 gallons. They probably shipped him, on average, 12,000 to 18,000 gallons/month. Ted was formulating product for White Wave's Silk in the 4% solids area. So 1 volume of IPC base would end up as more than 2.5 volumes of Silk, or 37,500 gallons of Silk a month. And that was only several days a month production for IPC's plant. IPC had to do something, so they began spray-drying their organic soymilk in the hope of developing a wholesale market. They shipped large amounts (many container loads), because a broker in the USA led them to believe they could sell plenty. Eventually they did sell small amounts to the USA. One woman buyer ran a health food company that used it in a potato mix. She ordered several 50-lb bags at a time and didn't pay her bills well.

Initially the SC-2000 continuous process Soya Cow didn't work, so George worked with Raj to perfect the technology. This took a long time, and that delay is one thing that took the company so long to get into production.

Actually, International ProSoya Corp. (IPC) was established (incorporated) in 1996. Lorne wanted to negotiate a broader license for Pacific ProSoya Foods that encompassed the whole world. They got rights of first refusal in every country of the world (except the CIS countries of the former Soviet Union), plus an exclusive license for North America. Early in 1996, IPC was formed, licenses were granted, and then (as its first move) IPC bought ProSoya's plant in Ottawa, Ontario (from Raj), and formed a company named IPC Eastern. When IPC launched its first product, it was made in the Ottawa plant (which IPC owned) and packaged by Beatrice.

The company was running into problems in western Canada selling bulk soymilk. They could not convince the big dairy, Dairyworld, to buy milk and package it. But they did get Dairyworld to agree to package and distribute soymilk for them. They even offered Dairyworld a joint venture. Then, shortly after the SIAL trade show in France in early 1996, they developed the brand SoNice and were going to market the product Dairyworld packaged under that brand. Dusty came back from the show with the idea for a brand "Soy-Nice," which after discussions became "SoNice." At about this time an "offering memorandum" went out. When the negotiations with Dairyworld fell through (in early 1996, after IPC was formed) everything changed. Another company, named SoNice Corporation, was formed in 1996.

In Nov. 1996, IPC launched its first product, SoNice. Dusty came up with the product name. Nobody in the firm at that time was aware of the similarity between this name and that of So-Good, a very popular Australian soymilk. George had never heard of the So-Good product, and he thinks that others in IPC also had not. This launch was a momentous event for both the company and the Canadian soymilk market. A.C. Nielsen in Canada attributed the dramatic growth of the Canadian soymilk market to IPC's market entry in 1996 and 1997. Many people who tasted SoNice said it was the best-tasting soymilk on the market. Many chain stores switched brands immediately. To own the patent for the process that makes the world's best tasting soymilk was to own something very valuable–but many of the company's "financial wizards" failed to grasp this. During late 1996 and 1997 the new company grew at breakneck speed. This growth required money. The company's stock was never publicly traded, but it was almost publicly traded.

When IPC packaged SoNice in Canada, they distinguished the Canadian Package from the U.S. package by a little roundel (circular symbol), containing a maple leaf plus "Canadian Technology," on the lower right hand corner of the panel. Continued. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2595. Conquergood, George. 1999. History of work with soyfoods and vegetarianism. Part IV. Starting IPC and mistakes–1997 (Interview). *SoyaScan Notes.* April 21. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** George now feels that his biggest mistake was relinquishing control of the company during its formative

period. He owned 100% of an idea; he wanted to commercialize Raj's process. But he didn't have the funds to build the plant in Vancouver and invest in an SC-1000, let alone an SC-2000. So he brought in Lorne and other people to take care of the financing. Today he owns 7% of the company–which today is worth nothing. There are now 400 shareholders in IPC and Raj Gupta is the largest; he now owns 10% of the company. The company has raise money both by selling shares and by borrowing. One of the biggest lenders, who was supposed to convert to shares, never did, and this became a major problem. They always wanted the company to wait longer before it went public so shares they had the right to convert to would be worth more. The company had the opportunity to go public, it should have done so, but it never did–which is one reason it no longer exists.

The people who were now driving the company were Loren Broten and the board of directors. George was on the board in the early days but he was asked to get off because there was too much management on the board. By late 1997 the board increasingly became very focused on what George calls "non-operational issues," largely "How do we ingratiate ourselves. When do we get the big hit? When do we go public? etc.–Instead of focusing on driving and expanding the business, they were focusing on how to line their pockets." The board took control of the company and started to undermine management. The company was growing very nicely, and Dusty had left in early 1997 to go to Scotland to help organize a joint-venture soymilk company there. She remained on the board (as the token woman on a very male chauvinist board) the entire time. Dusty (who is a very fine and talented lady) and George were the real disturbers on the board–because they were the only ones focused on the business.

The management had made a presentation to the board that the only way the company could control its own destiny was to have its own soymilk manufacturing *and packaging* plant. IPC's initial plan was to work with Dairyworld Foods, which is the big (billion dollar) cow's milk dairy in western Canada; their initial plans and plant were based on having Dairyworld package their soymilk–but no contract was ever signed. At the last minute Dairyworld refused to package the soymilk for IPC–because they were involved in some other negotiations. So IPC found itself with a soymilk manufacturing plant and no way to package it. IPC soon found itself spending too much money transporting its soymilk–shipping it first to a co-packer, then to distribution centers, and finally it to the consumer. Ted Nordquist never packaged soymilk for IPC; he bought soy base from IPC, did his own formulation, then packaged and sold it to White Wave. But IPC's president kept raising the price until Ted finally stopped buying IPC's soymilk. So Silk is no longer made with ProSoya base.

Initially IPC had its soymilk packaged by Beatrice Foods, which is now Parmalat Canada Beatrice, in Toronto. Beatrice is now a Parmalat brand. Parmalat, the biggest dairy in the world, bought Beatrice not long ago for $400 million.

IPC's board of directors finally accepted its management's proposal to build its own manufacturing and packaging plant–now a key to the company becoming really viable. The plan was to shut down the ProSoya plant in Ottawa, Ontario, move it out west to British Columbia, combine the two soymilk extraction plants in new facility, put in five packaging lines (two aseptic and three ESL gable-top refrigerated), plus equipment to make soy yogurt and ice cream–a full soy dairy. They would make all the products for North America at that one plant until it was operating at full capacity–which they projected would only take about three years–and then build a second plant on the east coast of Canada and ultimately a third plant in the south of the United States. So in Nov. 1997 IPC bought (with down payment and mortgage) a 66,000 square foot building in the same town in British Columbia (a 5-minute drive away from their existing plant) that had been used for food processing.

IPC had a very tight agreement with Raj Gupta in terms of soymilk equipment sale. It was never IPC's focus to set up people with the technology to be in competition with IPC, but it was IPC's goal to set up people to be in partnership with IPC.

Jerry Duncan came to IPC from the dairy industry. He did some consulting for IPC as early as 1995 and he became president of the company sometime in early 1997. Loren appointed him president. He is presently no longer with IPC; instead he is involved with a food brokerage company, and he is still a consultant. He was one of the vice-presidents of Dairyworld Foods, and he can be very gruff and hard to deal with–though he is a nice person when you get to know him; his bark is much worse than his bite.

Vesanto Melina, who lives in Langley, BC, quite close to the factory, worked for IPC as a consultant several days a week for a little more than a year before it closed. She looked after consumer relations, did trade shows, developed packets of recipe cards, and recommended SoNice in her books on vegetarian cookery. She and Dusty are good friends. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2596. Conquergood, George. 1999. History of work with soyfoods and vegetarianism. Part V. Rise and fall during 1998 (Interview). *SoyaScan Notes.* April 21. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** One of the former directors, Robert Landori-Hoffman, asked for and was given the exclusive responsibility to finalize the funding for that facility. He

indicated to the board that all the funds were in place, it was a "done deal," and they could go ahead and start development. So they began to "load the land" and engineer the plant, get the building permits, order the very expensive equipment (five packaging lines, holding and blending tanks, compressors, boilers, etc.), and pay deposits on that equipment. They were ready to cut the floors open and put in the drainage. Everything looked great. But by late January 1998 the money still hadn't come in. IPC was in the middle of launching its United States operations, and they had listings (reserved shelf space) in 6,000 U.S. stores in the first 3 months of 1998–Safeway, Albertson's, etc. Note: First the head office lists the product, then individual stores can order it. Most of the listings were not by way of cash slotting allowances but by way of "free fills" (fill the shelf once for free with each flavor) which is a very minimal slotting fee.

The company was shipping products like crazy (initially for aseptic cartons much more than gable-top), repeat orders are coming, the volume was skyrocketing, but now there are quality and volume problems with Farmland Dairy, their co-packer in New Jersey. All the base soymilk sold in North America was made in the Ottawa (Ontario) plant, and was shipped by tanker trucks initially to Beatrice Foods in Toronto (Ontario) for formulation and packaging (in Tetra Brik cartons), but was soon shipped down to Farmland in New Jersey where it was formulated and packed in Combibloc packages–because their Tetra Packer did not have a reclosable top–which was considered essential for entering the U.S. market. Farmland needed business; they were only packaging for Westbrae (in 2 liter cartons). Soon Farmland was packaging IPC's refrigerated products as well. The finished product was sent to five distribution centers. The whole system was very inefficient, in part because it is more efficient to ship west than to ship east. For a while, IPC tried to work with Daisy Linda, the old Loma Linda plant in Riverside, California, to have them package refrigerated products, but then Daisy Linda went through a receivership.

The best way would have been to make, formulate, and package the soymilk in one plant on the west coast in Vancouver (British Columbia), and ship it eastward to distribution centers. So everyone in the company began to focus on the director who said that he had come up with the money to build a new plant. It began to look as if he was trying to suck money out of the company, and consult it to death. The rest of the board and management gave him an ultimatum; come up with the money soon or get out.

SoNice was made with organic soybeans and other ingredients and sweetened with agave. It was a pure product with a great taste. When the product was introduced to U.S. chains like Wegmans and Albertson's, SoNice became the best-selling soymilk in their store overnight–because of the quality. They did in-store demos as their main form of advertising. They developed an elaborate kit, including a book about the product, for people doing the demos. Brokers and the heads of top supermarket/grocery stores were ecstatic with the product. But they did not have the money to support the rapid expansion. But very soon it will happen again, and SoyaWorld has the money and horsepower (distribution, contacts, etc.) to make an even bigger splash. Dairyworld Foods has many affiliates and friends in the USA; they will soon make and formulate the base, package, and distribute it. SoyaWorld is just a marketing company.

At the same time, the IPC leadership started from scratch, and tried to find new ways of putting together a partnership to raise the money. They talked to various financial institutions, institutional investors, etc. Mr. Broten had made the company very complex in terms of the many companies that he formed; it was like a shell game. It became too complex for potential investors. Plus, Raj Gupta wanted a large share of the final deal. His greed was part of the pool of greed that destroyed the company. Raj has a contract which guarantees him a minimum large income per year (from royalties, etc.); this made potential investors uneasy.

So as orders kept growing like crazy, IPC was unable to raise the money needed to keep up with growth and rationalize their production and packaging operations. They had already used up all their working capital in capital expenditures–as in the deposits on the new building (plus a big mortgage) and on many different pieces of equipment. With no working capital, became very difficult to operate. By May 1998 IPC hit $1.2 million in sales for the month; but they were able to fill only about 85% of these orders. Then they just ran out of money.

Farmland in New Jersey started to not give IPC packing time, due to financial difficulties. Then came the straw that broke the camel's back. By July 1997 IPC was on ad in Canada with A&P stores with a 2-liter products; IPC had paid $25,000 for a huge ad in the A&P newspaper with 2-liter soymilk on special. IPC was producing only refrigerated at that point; the last UHT product was packaged in May. A&P was looking for 10,000 cases of product for this ad, IPC was trying to fill their requirements, but Farmland (who was being prepaid) was flushing the refrigerated UHT soymilk down the toilet, due to packaging problems. On Farmland's last run, they ruined 13,000 gallons of formulated product–which was all pre-sold. That was the last straw, and the last production run that Farmland ever did for IPC. IPC never sued Farmland, which reimbursed IPC for the lost product. Farmland said it did not have enough holding tanks for processing (since they had their own milk in these tanks); Moreover, their Schmidt processor went down. But IPC lost the $25,000 it had spent on the A&P ad, then got fined another $10,000 by A&P for nondelivery of product.

At that point IPC decided to regroup and focus on getting the money to get the new processing and packaging plant into operation. They began talking with everyone they could find about a partnership–from Nestlé to the Alberta Wheat Pool, to Edensoy, etc. Unfortunately the board of directors did not let the people who knew the business best negotiate with other partners for partnering. The board decided to do the negotiating because they represented the shareholders. At one point the board found a firm that would take the company public by raising $12 million, which would be put into new plant construction and operating expenses, and essentially allow to the company to move full speed ahead, with projected sales for 1998 nearing $20 million, and skyrocketing into 1999. They wanted the IPO to be at $1.20 a share. The directors had just finished raising money at $1.60 a share, and had given their shareholders expectations of a big increase. So they wouldn't accept the deal at $1.20 a share. Consequently, at the end of July 1998, the company had to shut down its two soymilk making plants in Vancouver and Ottawa, and go out of business. It was a sad ending, caused largely by greed. The board of directors is now down to two people–Eldon Heppner and Ward Yeager–but they are the two that caused most of the problem, partly because they did not understand the industry, and partly because of their interference in the operation of the company. They raised most of the company from small investors, and were among those who held the company back from going public.

In 1 March 1999 George resigned because he disagreed with the deal that the board of directors had struck with SoyaWorld, and he did not want his name to be on the document that was sent to the shareholders offering them this sale. He was the last employee of the company. After a deal is finalized, George would like to become head of global business development, working as a consultant for SoyaWorld, with a free reign to set up new ventures in countries around the world, including in the natural foods market in North America. He does not want to be a production manager. Most of his experience is in sales and marketing; that's what he has done most of his life. Continued. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2597. Conquergood, George. 1999. History of work with soyfoods and vegetarianism. Part VII (Interview). *SoyaScan Notes.* April 21. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** By now the two members of the board of directors are on their knees, begging Dairyworld Foods (the huge, billion dollar dairy products and food company in Vancouver, British Columbia–the largest in Canada) to come to their rescue. In about 1997 Dairy Foods World and Peter Joe signed a joint venture agreement, which had been under discussion and negotiation since about 1995 or 1996. As a result of that, Dairyworld Foods created a division named SoyaWorld Foods, which is a 50:50 joint venture between Dairyworld Foods and Sunrise Markets (Peter Joe, in Vancouver, the largest soymilk manufacturer in Canada). SoyaWorld, which is a marketing company for products made by the two other companies, now controls more than 60% of the non-dairy beverage market in the grocery and supermarket trade in Canada–according to A.C. Nielsen statistics. The second largest player is Beatrice (10-13%), followed by Nutrisoy (a UHT soymilk made by Nutrisoya in Quebec), then the imports (Pacific Foods, Rice Dream, Vitasoy, Westsoy, and Edensoy). SoyaWorld presently markets three soymilk products: Sunrise soymilk (a beany-flavored product made and packaged by Sunrise in plastic bottles), Soyganic (a traditional beany-flavored product made by Sunrise with organic soybeans, packaged at Dairyworld in a gable-top carton and sold refrigerated), and So-Good (licensed from Sanitarium Health Food Co. in Australia, formulated and packaged in gable-top by Dairyworld, and based on soy protein isolates). Soyganic and So-Good appeared on the shelves at about the same time in 1997 under the Soyaworld brand. They distribute those three products extensively across western Canada, and sell them in the dairy case. They are busy expanding, buying up dairies, so that they are now a national dairy, from coast to coast, in Canada. They own the shelf space in the dairy case across Canada, and they have tremendous synergies with other dairy companies in the United States. They use the dairy for distribution; SoyaWorld is really just a little marketing group. They don't want to see SoNice on the market because it outsold them 7 to 1–because it was a better product.

Now IPC is in such a mess, with so much debt (about six million Canadian dollars). Of this, about $2.5 million is unsecured to creditors. What could happen that would allow IPC to move forward? (1) A public company could buy the assets of IPC (the equipment, the brand, the goodwill)–not IPC itself; George could get rid of most of the debt with shares in a public company, so the company would not need a great deal of cash. (2) SoyaWorld could buy IPC; since August 1998 they have been trying very hard to do so. They are making a very complicated, long-term offer, with long-term royalties, etc. Both ProSoya (Raj Gupta) and IPC are tied into the deal. The amount of cash that would be put on the table at closing is quite small–not even enough to pay off the secured creditors, let alone the unsecured creditors. George is not happy with this deal, but there is not a lot he can do about it–except to keep on trying to scuttle it–as by talking to Horizon, the organic dairy. George feels very frustrated; he is cooperating with the deal to a degree, but at the same he's looking for a better deal. Yet he thinks the odds are 90% that IPC's assets will be owned by Dairyworld within the next few weeks or months. If it goes

through (the closing date is May 4) George will at least get his back pay–he has not been paid since last August–but he would loose a lot as a shareholder. George does not know whether or not he has a future with SoyaWorld if the deal goes through–but he plans to be in the soy business somewhere. Since George knows more about making IPC's soymilk than any other person in the company, he is one of IPC's most valuable assets–yet SoyaWorld has not offered him a firm employment contract. SoyaWorld hopes to buy out Raj Gupta and his patents, and get him out of the picture. Continued. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2598. Conquergood, George. 1999. History of work with soyfoods and vegetarianism. Part VIII (Interview). *SoyaScan Notes.* April 21. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** In addition, SoyaWorld would instantly take control of the soymilk market in Canada. First they would gain control of the dairy case (which is where the future of soymilk lies), then they would start trying to push out the American-made aseptic soymilks such as Vitasoy. SoyaWorld would also quickly become a major force in the U.S. market by aligning themselves with major dairies to get distribution. George thinks that major American dairies will be putting Canadian-made soymilk in their delivery vehicles, trucking it to supermarkets, and putting it in American dairy cases. In Canada you have Parmalat / Beatrice Foods selling Sensational Soy soymilk from coast to coast. Since Jan. 1997 it has been packaged in 2-liter blue gable-top cartons at the Beatrice plant in Brampton (20 miles / 32 km west of Toronto, Ontario). It has a beany flavor because it is made by Pak Fok Food Products, a small Chinese company [run by Simon Kwan] in Scarborough (a suburb of Toronto), Ontario, that makes tofu and soymilk. There are no other soymilks, besides those sold by SoyaWorld and Beatrice, that have widespread distribution.

By the way, IPC taught Beatrice how to make this soymilk when Beatrice started packaging for IPC in 1996 using 1-liter aseptic, Tetra-Pak cartons. IPC also got a commitment from Beatrice to package gable-top products. When IPC introduced its refrigerated soymilk at the health food show, it got commitments (listings) from major stores to carry IPC's refrigerated soymilk in gable-top cartons. Beatrice was now packaging IPC's aseptic soymilk and IPC kept asking Beatrice when they could start packaging the gable-top soymilk. Beatrice kept stalling, and stalling–month after month after month. Beatrice said there was a problem with their equipment. Finally IPC actually launched its product through Farmland Dairies in New Jersey. IPC pulled all the packaging stock it had from Beatrice and sending it down to Farmland, because the stores were pressuring IPC, asking "Where's the product you promised us?" Then, low and behold, just as IPC starts distributing its gable-top soymilk packaged at Farmland, guess who comes out with a soymilk. Beatrice! IPC's president, Mr. Jerry Duncan, failed to finalize a contract, which contained a non-compete clause, with Beatrice. Nor was such a contract ever signed with Farmland. Duncan had been in the dairy business for more than 20 years, working for various companies. For example, he was very successful developing a novelty ice cream business, which he sold. He was responsible for expanding Dairyworld Foods from simply a dairy company to a food company. And he conducted the initial negotiations for Dairyworld Foods with Peter Joe of Sunrise. When Duncan left Dairyworld Foods after about 5-7 years, Maheb Nathoo took his place in the negotiations with Peter Joe. After Duncan started his own consulting company, IPC hired him as a consultant. So he should have known the importance of such a contract. Thus, it was both greed and lack of basic business skills that brought down IPC.

George is now very interested in functional foods / nutraceuticals. He has developed a soy pudding in this category. He has samples of a similar product, Alpro Soya Dessert, launched in Jan. 1989 in Europe in aseptic cups, four in a pack.

Dusty Cunningham has is now back in British Columbia. She has been hurt financially and still feels very badly about the collapse of IPC. She worked long and hard on the soymilk plant in Scotland.

Lorne Broten has gone back to work on the water company he developed. They use proprietary technology to soften water and to make chlorine from rock salt to avoid handling liquid chlorine.

George has not received any pay since last August. He is still working on the proper disposition of assets, but the main people working on that are the two men who now constitute the board of directors of IPC; they were both major investors. The final deal will involve a payback over a ten-year period. The dairy company involved wants to get control of the market for both dairy and soymilk across most of Canada. IPC had purchased (with down payment and mortgage) a food processing plant in BC. They had loaded the land and invested a lot of money in that plant. When it was clear that the necessary funds would not come through, they had to walk away from that deal, losing $750,000. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2599. Conquergood, George. 1999. Re: International ProSoya Inc. Letter to William Shurtleff at Soyfoods Center, April 21. 1 p. Typed, with signature.

• ***Summary:*** "Dear Bill, It was a pleasure to finally talk to you. Your name has been a household word around my place for many years. My copy of *Tofu & Soymilk*

*Production* is quite dog-eared. I am surprised that Raj never mentioned myself or Dusty and Lorne for that matter, but I was never in this for the glory. Like you I just wanted to make a difference.

"I will send you my historical story under separate cover later. For now I am enclosing some articles you may not have had on IPC, as well as sample packages of the products produced." This large box also included many samples of So-Nice soymilk in various flavors and sizes. Address: 15328 Columbia Ave., White Rock, BC, V4B 1J7 Canada. Phone: 604-541-8633.

2600. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. Profiles: Real Roasted Soys. April. p. 7.
• ***Summary:*** Sharon Hart and Diane Marcou are the founders and owners of Dyshar Farms Ltd., which makes Real Roasted Soys. They have found that soy snacks make sense in terms of good taste and nutrition; people like them when they try them. Dyshar Farms' 4-point recipe for success has worked for them since 1996, and the company is in its fourth year of operation. Sharon Hart operates Blythe Brae Farms Ltd. just west of Woodstock, Ontario. The Real Roasted Soys company began almost by accident when [in 1986] Sharon "heard comments from dairy and pork [sic, hog] farmers that they liked to munch on roasted soybeans processed at the elevator. Then in the fall of 1995 she hosted a meeting of a businesswomen's club called Zonta, at which dietitian Diane Marcou was the guest speaker.

"To make the evening more interesting, Hart prepared a meal of roast pork and vegetables accompanied with all the soybean dishes for which she could find recipes, including salmon soy dip, soy salads, and roasted soybeans. Marcou was impressed, talked about the nutritional value of soybeans, and after eating roasted soys, ended the evening saying 'we must do something with these.'" Diane and Sharon formed a new company, Dyshar Farms Ltd.–the name was made by combining their first names. They hired a professional to design their registered logo, developed a web page (http://web.idirect/~soys/ [changed by April 1999 to soys.com]) and product information sheets. Today the company sells eight flavors of soynuts: Plain, salted, BBQ, salt and garlic, sour cream and onion, honey coated, maple syrup coated, and chocolate coated. Their herbal and plain roasted processing location is used exclusively for soybeans to assist people who may have allergies [as to peanuts].

Note: Dyshar Farms is located at R.R. #3, Woodstock, Ontario, N4S 7V7 Canada. Phone or fax: 519-537-2199. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2601. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. New president for ADM. April. p. 3.
• ***Summary:*** Archer Daniels Midland Co. recently elected John McNamara as president. This promotion took place less than two years after John was promoted from ADM's Canadian operations to assume the position of company vice-president responsible for oilseed crushing operations. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2602. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. A look at Brazil and Argentina. April. p. 4.
• ***Summary:*** Brazil and Argentina are currently the world's second and third largest soybean producing countries, respectively. Mr. Kim Cooper, of OSGMB, recently spent 2 weeks with 15 other tour members, studying soybeans in these countries. In Argentina. the top three producing provinces are Buenos Aires, Santa Fe, and Entre Rios. Surprisingly, 5-7 years ago, commercial fertilizers and pesticides were not used in Argentina. There has recently been a tremendous growth of acreage in Roundup Ready soybeans. There is still much potential for the growth of soybean and corn production in Argentina.

The Brazilian government is carefully considering its policies towards transgenic (Roundup Ready) soybeans. They are aware that local farmers want to use this new technology, but they are also aware of the European objections to such soybeans. Brazil is the world's last major soybean producing country that has not approved transgenic soybeans. "This puts Brazil in an enviable position, especially with many European countries." There appear to be no major obstacles to the growth of soybean production in Brazil. "It seems to be only a matter of time and money," both of which appear to be plentiful in Brazil. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2603. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. Tofu... Simply delicious. April. p. 5.
• ***Summary:*** The Agricultural Adaptation Council recently approved OSGMB's application for funding of a new tofu recipe brochure. To be titled "Tofu... Simply Delicious," it will feature 8 easy-to-prepare tofu recipes with color photos of each, plus nutritional analyses and tofu preparation tips. It is expected to be completed in June 1999 and will be sent free of charge to the over 650 dietitians who requested tofu recipes for their clients in 1998 and 1999. It will also be made available to anyone who contacts OSGMB requesting information on soyfoods. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2604. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. Market opportunity for non-GMO soybeans? April. p. 6.
• ***Summary:*** In Argentina, an estimated 70% of the 1999 soybean acres have been planted to Roundup Ready varieties. In America, the figure is predicted to be 50%, and in Canada 30%.

In the Americans, it seems that genetically engineered crops are a non-issue. "Consumer groups have a reasonably

strong level of trust in the regulatory systems that are in place for the registration of new products. The story in Europe is very different. After the 'Mad Cow' fiasco a few years ago. there is little trust in government regulatory bodies.

"Even though some genetically modified (GM) soybeans and corn have been approved for import and consumption within the European Union, over most of Europe the crops have not been approved for production. A few countries have imposed a two to three year period during which no GM crops will be grown. Consumer concerns have led a few countries to completely ban the imports and production of GM crops until further notice."

"Recently, consumer concerns have led some European food companies to demand that their suppliers provide only non-genetically modified products. It seems likely that the demand for non-GM soybeans in Europe and the market opportunity for Ontario soybeans will be around for some time to come." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2605. Yves Veggie Cuisine. 1999. Yves Veggie Cuisine: Recipe cards. Vancouver, BC, Canada.
• ***Summary:*** This is a full-page color ad for Yves Veggie Breakfast Links (fat free). "These links taste just like the real thing but they're good for the heart. That's because they have no fat, no cholesterol, and they're made of soy protein." Address: Vancouver, BC V6A 2A8, Canada.

2606. Conquergood, George. 1999. How Raj Gupta got into the soymilk business (Interview). *SoyaScan Notes.* May 10. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Raj is a research scientist and a physicist. He wanted to come up with something to feed hungry and starving people in Third World Countries. His native country is India and hunger has long been a major problem in India; he wanted to do something for his people. He focused on developing a low-cost protein source that was palatable. "He knew that soy was superior food, but people in Indian didn't like the taste." He wanted to develop good-tasting alternatives to cow's milk and paneer (fresh dairy cheese), which were quite expensive in India and came from the Holy Cow. Once he had a good soymilk, he wanted to use it as the base of puddings, yogurts, and other such foods which would be popular in India.

Raj went about this research scientifically, trying to understand what was causing the problem. He found that the oxidation of lipoxygenase enzyme led to off-flavors. To control that, he developed the concept and process of airless cold grinding. An associate of his, Grant Wood, who worked for the research council under him in the same department, is the person who actually designed the original SoyaCow.

Theoretically Raj was working in his home kitchen. But he was a government employee, working for the National Research of Canada, a huge organization in Ottawa. As a professor of physics, he had access to good scientific laboratories–but physics labs rather than food labs. He and Grant Wood did most of this work on their own time. He actually got a Canada Council award for designing the grinder.

Raj filed for two patents on his cold grind airless process. These patents are owned by a U.S. company, Micronics, in partnership with his brother, who is a university professor in the United States.

Note: According to Soyfoods Center records, in March 1985 Raj and his wife, Rashmi, applied for a Canadian patent titled "Process for making soymilk with no beany flavor" (No. 477,902). In 1986, Raj, his wife, and one other Gupta filed an international patent application titled "Food processing in oxygen-free environment" [Soymilk]. In April 1987 they filed for a U.S. equipment patent titled "Equipment for making no-beany flavor soymilk." They assigned the rights to ProSoya Corp. (Maryland Heights, Missouri).

In 1992, when George first met Raj in Ottawa, Raj was using his SoyaCow SC-20 to make both soymilk and tofu. He even had a little tofu forming box that he shipped with each SoyaCow. The box would form one batch of soymilk from the SC-20 into tofu. A filter press pressed the okara. You would coagulate the soymilk to make tofu. Today the SoyaCow SC-20 is being made in both Russia and India.

Frank Daller, who was originally in media in Canada, was an important early figure in ProSoya. Before he met Raj, he was working with a charitable organization in Canada (probably Plenty Canada, or perhaps Child Haven). Frank met Raj shortly before George did, when Raj was busy making his first SC-20s. Plenty had an SC-20 at The Farm in Canada, and today Plenty has several SC-20s in projects operating worldwide. The two main organizations that Raj started working with through a CIDA grant he obtained were Child Haven and Plenty. Frank Daller approached Raj and convinced Raj that he should become the president of the company–the man in charge of daily affairs at the office. He invested a little bit of money; with Raj, if you invest a little bit of money, you can do anything.

In early 1996, Frank Daller left ProSoya and set up his own charitable organization. One advantage of such a corporation is that it is not required to pay any taxes. He got a lot of cash by selling the shares he owned back to ProSoya and IPC. More importantly, he had rights to stock options–which he also sold. Somehow Frank and Loren Broten wound up in some difficulty. Today Frank is the president Daller & Co. Ltd. in Ottawa, Ontario, Canada. He sells soymilk and tofu processing equipment. Address: Vice-president Operations, International ProSoya Corp., 312-

19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2607. Harrigan, Brian. 1999. Update on the work of ProSoya Inc., especially in Russia (Interview). *SoyaScan Notes.* May 11 and June 7. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** ProSoya gives 10% of their revenue (not their profit) from the SC-20 to Child Haven, the charitable organization which purchased the very first SC-20 SoyaCow from ProSoya. Child Haven now has a Soya Cow Resource Center in India near New Delhi. The managing director, a scientist, uses the Center to train people, and he goes on the road and shows the various places that have SoyaCows how to use them. SoyaCows are now also be purchased by private companies who make commercial soymilk; they are also assisted by Child Haven scientist.

Actually, the name of the SC-20 has now been changed to VS-40. VS can stand for various things in various languages, such as *Vaca Soya* (in Spanish) or *Vache à Soya*. But the main reason for the name change was that ProSoya wanted to have a number that reflected the capacity of the machine in liters per hours. In the SC-20, the "20" referred to the size of the cooking vessel, which was 20 liters. The machine has always been able to produce about 40 liters/hour of soymilk, using a batch process–a little more 13 liters per batch and three batches per hour.

In Russian *EsKa Vacit* means "SC-20" and *Soya Karova* means "Soya Cow." A program called "Feed the Children," is an American charitable NGO headquartered in Oklahoma City, with branches in about 14 countries. They have bought 200 SoyaCows (the VS-40) recently for Russia and they want to buy 800 more next year. There are now more than 500 SoyaCows in Russia–all over the country. Feed the Children buys these SoyaCows from a Russian company named ASSOY, in Krasnodar, run by Mr. Podobedov; these SoyaCows are made in by ASSOY in Russia under license from ProSoya in Canada–part of a technology transfer agreement signed about 3 years ago. The agreement says that ProSoya will get a small royalty on each system sold. ProSoya declined the offer to own part of the ASSOY business. Feed the Children buys the SoyaCows using money from USDA that was earmarked by Congress as part of the billion dollar U.S. Food Aid Program to Russia. This is the only non-food item in the program. Feed the Children got soybeans from USDA, monetized them by bartering them, then used the money to but SoyaCows from ASSOY in Russia. ProSoya in Canada receives nothing from the deal–except eventually (hopefully) its small royalty each machine sold.

Feed the Children, true to its name, places most of the SoyaCows it buys in social institutions, with the main objective of feeding kids. Brian would estimate the breakdown at 30% monasteries, 20% orphanages, 20% hospitals, 20% schools, and 10% prisons. Monasteries are one of the few social institutions that the Russian people still trust; they have generally remained honest and free of corruption. These monasteries include 50 Russian Orthodox Christian monasteries, which have long run soup kitchens and shelters to serve the hungry and homeless. The main monastery in Moscow, which is the home of the patriarch of the Orthodox Church, has a SoyaCow and now feeds soymilk and tofu (among other things) to more than 600 people a day–plus their own staff of 80 monks and 200 associates. The social institutions typically run their SoyaCows 20 hours/day and sell any excess soymilk to the public consumers. The SoyaCow comes with a cutter mechanism which transforms it into a SoupCow, and enables it to make a thick well-cooked vegetable soup in 20 minutes–starting with water and any mixture of raw vegetables (carrots and potatoes are popular). Okara is often added to these soups–to make them thicker and more nutritious.

This has also created competition. Four different companies are making machines similar to SoyaCows (some are *very* similar, which raises breach of patent issues). One of these competitors is the largest aerospace company in the ex-Soviet Union. They used to build fighter jets; now they make SoyaCow knock-offs.

in Russia, many SoyaCows are owned and operated by small entrepreneurs. They would read an article in a magazine or newspaper, or see the SoyaCow on TV, get the address of ASSOY in Krasnodar, and make contact. With Russia's current food shortages, this is one area rich with opportunities. An estimated 60% of the entrepreneurs bring the SoyaCow into an existing business (especially a food-related business) while the other 40% start a new business based on the SoyaCow. Entrepreneurs are looking for food sources that make them less dependent on food shortages and unreliable distributors.

About 95% of the SoyaCows in Russia make soymilk that is not packaged. Rather, it is sold hot, directly to consumers, either in little plastic cups or the consumers bring their own containers so they can take the soymilk home. Most SoyaCows are operated in the back of small fresh food stores, or in specialized little Soya Shops (Soyushka in Krasnodar). The fresh, hot soymilk is put into a large, clean metal container or drum. Typically two flavors are sold, each in its own large container: Dairylike contains granulated sugar and a little salt; chocolate is dairylike with added cocoa. In Russia, soymilk retails for about $0.12/liter; this is about one-third as much as cow's milk which costs $0.35/liter. Yet cow's milk is not readily available. A lady behind the counter uses a measuring cup to ladle out the hot soymilk (at about 70ºC) out of the pot and into the customer's container.

Through all of this, ProSoya in Ottawa is aiding Russia's transition to a market economy. Brian concludes:

"This is a fantastic program! It's unique, has a bright future, and we love it." The presence of ProSoya as a partner in Canada gives important legitimacy and credibility to ASSOY, assuring organizations like Feed the Children that ASSOY is not a "fly-by-night" outfit. They have "milked that relationship to the fullest–which is fine with us." Indeed ASSOY provides soybeans, training, infrastructure, and marketing aid in addition to SoyaCows. Address: Executive Vice-President, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2608. Thompson, Wes. 1999. Brief history of W.G. Thompson & Sons' work with soybeans, and current thoughts (Interview). *SoyaScan Notes.* May 11. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Since this year is the Thompson's 75th anniversary, Wes is interested in learning more about the company's history. They have been in the grain business since 1924. They ran an elevator business, and he thinks that, through it, they got involved with soybeans is about the late 1930s or early 1940s. They probably received soybean from farmers and shipped them to a crusher. The first soybean crusher in Ontario province that he is aware of was Victory Soya Mills [which began operation in late 1944]. In the 1950s Thompson's got into the seed business in a "brown bagger" way. In 1972 they started exporting and selling food type soybeans into Asia. And in 1975 they started a research group to breed soybeans; that was when they really got involved with soybeans in a big way. Over the year, the soybean exports and breeding have both grown nicely.

In the future, the company plans to focus more on food processing than on commodities–where the competition is fierce and the margins are small.

For the last few years, Thompson has supplied the European market with contracted non-GMO soybeans. So Wes is very sensitive to the changes in European attitudes to GMO that have taken place over the last few years. Thompson sells the soybeans as "GMO-free" and they get a premium for that, but they do not guarantee that these soybeans are GMO-free. Rather, they guarantee their "due diligence." They contract the production, then march the fields and inspect them.

As for the future of GMO: The first traits benefited the farmer rather than the consumer. Consumers will begin to show more interest and be less critical when new traits benefit them. Another problem in Europe was that industry and government did not take the concerns of consumers seriously. Wes is not afraid of labeling GMO products. "Let it happen. Keeping consumers in the dark is just asking for trouble."

A few days ago ADM came to farmers in the Blenheim area offering an 18 cent per bushel premium to farmers who grow non-genetically-modified soybeans. Their news release on the subject is dated May 5th. That seemed like a very important change of policy for a company as big as ADM. It seems like they believe that this will become a bigger issue before it becomes a smaller issue in North America. They defined what they considered non-GMO to be STS soybeans–which have herbicide resistance but the trait was developed through conventional breeding. Most of the soybeans ADM ships overseas are in the form of meal and other; a relatively small percentage is shipped as whole soybeans.

Wes' company is "a slave to two masters." They started out and continue to be focused on what their Canadian farmer customers want–which tends to be genetically modified. But in order to stay in business, over the last few years they have shifted their focus to food uses and consumers–both in Canada and in Asia. Address: President, W.G. Thompson & Sons, Limited, 122 George St., Box 250, Blenheim, ONT Canada N0P 1A0. Phone: 519-676-5411.

2609. ProSoya Inc. 1999. SoyaWorld Inc. acquires So Nice soy beverage brand: Leading soy beverage company also secures a strategic interest in ProSoya Inc. (News release). ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. 2 p. May 17.

• ***Summary:*** "Vancouver-based SoyaWorld Inc., a leading manufacturer and marketer of fresh soy beverages, has acquired the So Nice soy beverage brand and a strategic interest in *ProSoya Inc.* Through this transaction the company has also acquired soymilk extraction plants and equipment in Ottawa and Vancouver. Terms of the acquisition were not disclosed.

"'So Nice is an organic soy beverage for health-conscious customers. SoyaWorld will re-launch the product in Canada and the United States as *So Nice Soyganic,* an organic soy beverage fortified with calcium and other essential nutrients. *So Nice Soyganic* will complement the company's successful flagship product So Good [based on soy protein isolates, licensed from Sanitarium Foods of Australia], the mainstream soy beverage and nutritional alternative to milk.

"'*So Nice Soyganic* is an organic beverage, that will be targeted to health conscious customers through distribution in the health food stores and natural food sections of major grocery stores nationwide," said Maheb Nathoo, general manager and chief executive officer of SoyaWorld Inc. 'The new *So Nice Soyganic* beverage is a natural extension of SoyaWorld's business and a quality addition to our portfolio of dairy-free beverages.'

"SoyaWorld will also assume the ownership of the licensor rights of So Nice brand for soy beverages that are currently marketed in the UK.

"SoyaWorld secures exclusive license to ProSoya soymilk technology: ProSoya Inc., an Ottawa-based soymilk technology company controlled by Dr. Raj Gupta,

develops technology and equipment for production of 'non-beany' soymilk using a patented 'air-less cold grinding' process. The ProSoya technology, which provides the soy base used in the manufacture of *So Nice Soyganic*, will now be licensed exclusively to SoyaWorld Inc. in North America, with rights in certain other countries as well.

"In addition, SoyaWorld Inc. gains access to ProSoya's international patents and advanced technology used to extract soymilk from soybeans. A table top version of the ProSoya soy extraction technology was recently tested by the Johnson Space Centre and was determined to be suitable for use in soymilk production on NASA's first manned mission to Mars.

"Soy beverage industry grows: The soy beverage market is one of the fastest-growing beverage categories in Canada. Dollar volume growth for soy beverages increased 106 percent in 1998 over 1997 with Canadians consuming more than 10 million litres last year.

"SoyaWorld Inc. is jointly owned by Dairyworld Foods of Vancouver, one of Canada's leading dairies, and *Sunrise Soya Foods*, Canada's largest tofu company. Formed in 1996, SoyaWorld is Canada's largest manufacturer and marketer of dairy-free beverages, with production facilities in Vancouver, British Columbia; Brampton, and Ottawa, Ontario.

"Contact information: SoyaWorld Inc. Maheb Nathoo, general manager and chief executive officer. (604) 420-0162.

"ProSoya, Inc. Dr. Raj Gupta, President. (613) 745-9115." Address: 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2610. Conquergood, George. 1999. The two final deals: SoyaWorld and IPC, and SoyaWorld and Raj Gupta (Interview). *SoyaScan Notes.* May 18. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** The main deal (the takeover of IPC by SoyaWorld) was finalized on Friday, May 14, with SoyaWorld buying the assets of IPC. There was never enough money on the table to satisfy all of the secure lenders/creditors, so they (banks, governments, and a debenture holder–the big thorn in the side of the company) got the lion's share or that cash. Their securities were mostly liens on assets–such as food plants, processing equipment, etc. Everybody else has to wait until the next money-payment time, when the first royalties are paid. Raj Gupta (who has spent much of the past year working on these contracts) negotiated a separate deal from IPC to grant a license to SoyaWorld; they have a license that is very good, but not as good as the one IPC had. Raj came out of both deals in very good shape, at least in the short run. His goal of seeing his high-quality soymilk much more widely available should definitely happen. Dairyworld Foods has the option to buy him out, according to a sliding scale formula, whenever they wish. Assuming the product is successful: As Raj's royalties increase it makes more sense for them to buy him out; the sooner they buy him out, the less it costs them. George thinks he will probably be out of the picture in several of years. George got half of the money he was expecting; he was not offered a job by SoyaWorld or by Raj; Raj is willing to pay him commissions on any equipment he might sell as long a George pays all up-front expenses. Raj is very conservative; he wants his money used for R&D rather than to sell and promote his equipment.

SoyaWorld got two complete SC-2000 systems (including boilers, storage tanks, refrigeration equipment, etc.) and an R&D lab–assets worth several million dollars. One plant is in Ottawa and the other in Surrey, near Vancouver. SoyaWorld hopes to have SoNice back on the market by late May or early June. They will probably launch the product in eastern Canada–probably using product made at the Ottawa plant (formerly owned by IPC), which once made all the SoNice products sold throughout North America (and packaged in New Jersey). Note: ProSoya has its offices two buildings away on the same street (Canotek Road).

The two SC-2000 systems together can each produce 2,000 liters/hour of soy base at 10% solids. This becomes about 7,000 liters/hour of formulated product. This will give SoyaWorld a good start toward its first goal of having fresh soymilk in every dairy case where its milk is sold in Canada. The next expansion will be to the United States, and then to the world. The CEO of SoyaWorld is Maheb Nathoo, a native of India, whose background is in the dairy industry with Dairyworld Foods. When SoyaWorld was created he became its first CEO. Peter Joe, the head of Sunrise, is chairman of the board of SoyaWorld. David Coe, who is head of Dairyworld is so busy buying up small dairies all over Canada that he is rarely seen.

Who was at the table during the months of negotiations that led up to this deal? The two remaining members of IPC's board of directors (Eldon Heppner and Ward Yeager), IPC's lawyers, Maheb Nathoo, and the lawyers for Dairyworld and SoyaWorld. Peter Joe, David Coe, and Raj Gupta were all in the background as active players. Raj is the major shareholder in IPC and IPC is the major shareholder in Raj's company–ProSoya.

SoyaWorld is only semi-interested in offering George a position as head of their world soya development and marketing operations–creating new partnerships, joint ventures, etc. This is disappointing to George who feels they have "kept him dangling for 9 months, saying they are going to offer him a job." Dairyworld Foods has a similar position for their dairy operations. David Coe may want his dairy people to try to look after the soy operations; Maheb and Peter Joe seem to be favorably disposed to George filling the position. If George were to work for Raj, he

would, in effect, become part of a planned obsolescence program.

There are three huge dairies in Canada, each about the same size, and worth a little over one billion dollars. They are: Dairyworld Foods in the west, Parmalat Canada (including Beatrice) in Ontario, and Natrel Agri-Pura (a co-op of dairy farmers in the east–Quebec). But Dairyworld Foods is rapidly expanding by buying dairies in Ontario, Quebec, and the Maritimes. They plan to be Canada's first national dairy company; even now they have total coast-to-coast distribution. Another big daily company was Alt, the old Borden's dairy, but it got split up among Agri-Pura and Parmalat. Dairyworld believes that the soy industry in North America has a very bright future. Part of their long-term strategy is to use their dominance in the soy industry to dominate the dairy industry. George believes that, starting about now, the dairy industry will start to lead the soymilk expansion, and push even lower the price of soymilk products. They may even be able to sell soymilk, like dairy milk, as a loss leader or at a much lower markup than other refrigerated dairy items.

George thinks that SoyaWorld will produce both aseptic and fresh (gable-top) soymilk. They have a large number of both Tetra Pak machines and ESL (Extended Shelf Life) machines. Any soymilk they make in western Canada at their Ottawa plant can be packaged nearby at their dairy in Brampton, 20 miles west of Toronto. As far as George knows, the same thing happened to Dusty Cunningham that happened to him. She has not been offered a job by SoyaWorld, but she is still doing consulting in Scotland.

Many companies are realizing that it's a good idea to set up a soy dairy adjacent to a plant with state-of-the art packaging equipment. However it is not a good idea to build the soy dairy in the plant, lest dust and microorganisms from the soybeans be introduced into an environment which must be kept extremely sanitary. Moreover, the machines come with such huge capacity, that they can be used most efficiently if they are packaging a variety of products.

Since George was not one of the people negotiating this deal, he has not seen the final agreements. But he knows the general outcome because so many people have talking and consulting with him to get basic information about the company and because he is still a major player (significant shareholder). He and Raj have been in touch regularly throughout the negotiations. Address: Ex Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2611. Holz, Alan. 1999. How have U.S. exports of soybeans to western Europe changed over the past few years? Have these figures been affected by European concern with genetically engineered (Roundup Ready) soybeans? (Interview). *SoyaScan Notes.* May 18. Conducted by William Shurtleff of Soyfoods Center. [1 ref]

• ***Summary:*** Exports of soybeans / soybean meal from the USA to the EC-15 countries (the 15 countries in the European Community) are as follows (in million metric tons) from fiscal year 1994 (FY-94 = Oct. 1993 to Sept. 1994). Source: U.S. Bureau of Census data:

8.07 / 1.42 (FY-92)
6.20 / 0.73 (FY-93)
9.52 / 1.42 (FY-95, the peak for soybeans)
7.55 / 0.90 (FY-96)
8.04 / 1.31 (FY-97)
7.06 / 2.01 (FY-98, ending Sept. 1998). So while exports of soybeans to the EC-15 have been decreasing, exports of soybean meal have been increasing–recently. Crushing margins in Europe's large crushing industry strongly determine where the EC-15 countries import soybeans or soybean meal.

Next we must look at soybean imports by the European Union (EU), which are as follows:

13.11 (FY-93-94)
16.05 (FY-94-95)
14.25 (FY-95-96)
15.31 (FY-96-97)
16.88 (FY-97-98)
15.62 (FY-98-99). So EU soybean imports are generally increasing, but they are down during the last year. And their total imports are down partly because their indigenous production of oilseeds and soybeans is up.

Alan, who has been a USDA oilseed analyst for many years, thinks that the Roundup Ready soybean issue has only a small effect on western European consumption levels. The Europeans, more or less, buy what they need from the cheapest source. So prices probably explain more of the drop in exports than the Roundup Ready issue. Another key factor is indigenous European oilseed production, which has risen from 11.5 million metric tons (MMT) in 1993-94, to an estimated 15.5 million tonnes this year (1998-99 analysis year). The Europeans grow a relatively small amount of soybeans (1.7 MMT) this year and 800,000 tonnes in 1993-94 (mostly in Italy). The biggest oilseed crop in the EC-15 is rapeseed (9.4 MMT) followed by sunflower (3.6 MMT), soybeans, and cottonseed (0.7). Most of the increase in European production is caused by yield, and only a small amount by greater area. Copra and palm kernel which are grown in the tropics and imported to the UK.

Another factor depressing U.S. soybean prices is that over the last 10 years the European Community, China, India, Argentina, Brazil, Canada, and the USA have all taken land out of grain production and started to cultivate oilseeds (including soybeans). This extra worldwide production has led to an increased supply and stocks. U.S.

farmers continue to plant more soybeans since the loan rates favor soybeans over corn.

Concerning Brazilian exports: "Brazil has probably been selling some Roundup Ready soybeans whether they call them 'Roundup Ready' or not. That technology is available all over." Alan has no firm evidence but he says that this is the rumor.

In conclusion: Only a complex interaction of many variables can explain accurately why soybean exports to western Europe are down during the last year. If Roundup Ready is a factor, it is probably a very small one. The huge stocks (unused, unsold soybeans) are the main factor keeping soybean prices low.

Some interests outside the U.S. are concerned that we will become so dependant on a few highly developed strains and varieties that, if something goes wrong, there will be a food security problem. But this is less of an issue now than ever before because the U.S.'s percentage of the world oilseed supplies is now much less than it was in the past. There are many other producers and exporters. So with a more diversified source of supply, the risk is less. However the risk for American soybean farmers is more, because we are becoming increasingly dependant on certain soybean markets–such as China–and on certain varieties, which is the farmer's risk but not the consumer's risk. Address: USDA Foreign Agricultural Service, Oilseeds & Products, Room 5638 South, 14th & Independence, Washington, DC 20250. Phone: 202-720-0143.

2612. Lee, Jenny. 1999. Burnaby-based SoyaWorld tightens grip on market: Patented technology acquired in purchase. *Vancouver Sun (British Columbia, Canada).* May 18. p. D1, D12. Business section.

• ***Summary:*** On Monday, May 17, SoyaWorld, based in Burnaby, British Columbia, tightened its grip on Canada's $25 million a year soy beverage market. From International ProSoya Corp. of Surrey (near Vancouver) the SoNice brand, and soymilk extraction plants in Vancouver and Ottawa.

SoyaWorld also acquired a strategic interest in ProSoya Inc., an Ottawa-based company which developed the technology and equipment for producing a good-tasting soymilk using a patented grinding process. Financial terms were not disclosed.

SoyaWorld is jointly owned by Dairyworld Foods–western Canada's largest food company–and Sunrise Soya Foods, one of Canada's largest tofu manufacturers. Both companies are located in Vancouver.

A photo shows Maheb Nathoo, general manager and CEO of SoyaWorld, as he holds up new packaging for SoNice.

Note 1. Talk with receptionist at Dairyfoods World. Their official name is Agrifoods International Cooperative Ltd. They are a cooperative owned by dairy farmers in Canada. Their address: 6800 Laugheed Hwy., Burnaby, BC, Canada V5A 1W2. Phone: 604-420-6611.

Talk with George Conquergood of IPC. 1999. May 28. The date that SoyaWorld officially finalized its deal with IPC was Monday, May 10. May 17 was the date that SoyaWorld sent out its news release.

2613. Cunningham, Dusty. 1999. The founding of ProSoya UK Ltd., a new soymilk manufacturing company in Livingston, Scotland (Interview). *SoyaScan Notes.* May 21. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** ProSoya UK LTd. (formerly called ProSoya PLC) is a new soymilk manufacturing company licensed to use the ProSoya process. They are located at No. 2 Kingsthorne Park, Houstoun Industrial Estate, Livingston, Westlothian EH54 5DL United Kingdom (Scotland). Phone: +44 1-506-433-777. David Simpson is managing director, and David Cormack is production manager. Address: Suite 114, No. 10 Paul Kane Place, Victoria, BC, V9A 7J8 Canada. Phone: 250-361-3225.

2614. Gupta, Raj. 1999. Update on ProSoya Inc. Background on Raj Gupta (Interview). *SoyaScan Notes.* May 21. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Raj is very happy with the fact that Vancouver-based SoyaWorld Inc. has acquired the SoNice brand and a strategic interest in ProSoya Inc. Raj has 5-6 U.S. patents on his process and equipment. The first patent was issued in about 1990 and has a life of 18 years, so it will be valid until about 2008.

About 35 SoyaCows (VC-40s) are now in operation in India–most of them in private businesses making tofu (soya *paneer)* rather than soymilk. Three or four of these are in New Delhi.

Raj's formal name is Rajendra Prasad Gupta. He was born on 18 Oct. 1942 in Sahranpur, Uttar Pradesh, India. He received all of his formal education, including his PhD degree in India. He married Rashmi in 1975 and is still married; she is very interested in his work with soy.

Grant Wood is a Canadian mechanical technologist who was Raj's colleague at the National Research Council. Raj had approached many people, but they were unable to build the machine he wanted. He told Grant Wood that he was trying to make a small (SC-20 type) soymilk machine, and that he was doing this for humanitarian purposes and for Child Haven. He asked Grant if he could help. As soon as he heard "humanitarian" he immediately got interested. He volunteered all his time, and a great deal of it, with no offer or promise of any future reward. Raj paid all expenses for materials. He had an excellent workshop in the 2,500 square-foot basement of his home in Ottawa, and there he built the first prototype and assembled the first twenty SoyaCows in a workspace on which he paid no overhead.

As ProSoya became more of a commercial establishment, in recognition of his generous and selfless work, Raj issued Grant about 10% of the company's shares. He still owns those shares, and he will benefit as the value of the company rises. He is not interested in cash now. He and his wife can get $1 million tax free.

It was not until 1994 that ProSoya outgrew the basement workshop and moved into the first commercial building on which the company had to pay rent.

ProSoya Inc. manufactures soymilk equipment and licenses technology. The brand "So Nice" cannot be registered as a trademark, no it can be written as either "SoNice" (pre-1999) or "So Nice" (now). Address: President and CEO, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2615. Joe, Peter. 1999. Sunrise Soya Foods and the creation of SoyaWorld Inc. in Vancouver, Canada (Interview). *SoyaScan Notes.* May 26. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** First a bit of background: In late 1995 Peter Joe went to Dairyworld and began talking with them about doing a soy yogurt together. Dairyworld is a huge co-operative of dairy farmers in western Canada (not just British Columbia). Gradually the talk turned to soymilk. Dairyworld had powerful packaging and distribution capabilities, while Sunrise had manufacturing and a deep knowledge of the soy business. Dairyworld got more and more interested in soymilk. Initially Peter started talking with a person who is no longer there. As the talks grew more serious, Maheb Nathoo was added to the team that soon drew up a shareholders and joint-venture agreement. Maheb, who is very bright, seemed to have a personal interest in soy. His daughters were into soy. He realized that milk is a commodity, that soymilk is another form of liquid protein, and is part of the milk shelf. Now he has become a convert, and he feels very strongly about the future and potential of soy. Maheb was the person who convinced the board of Dairyworld Foods (which consisted mainly of dairy farmers) that the joint venture with Sunrise was the way to go. These farmers realized that Sunrise was getting more and more space on the dairy shelf (i.e., invading their territory) so, hey, why not get involved with this newcomer. Dairy people also remember what happened with margarine; if they had gotten into the margarine business at an early date, they would have been able to offer it as another product, rather than having to compete with margarine using butter. Finally, the top executives and management people at Dairyworld think beyond the dairy farm and dairy farmer mentality, and they have done a good job over the past 3-4 years in getting the approval of the dairy farmers to go ahead with this joint venture.

At the same time Peter met Sanitarium people at trade shows for a number of years. Sanitarium was trying to sell the product into Canada from Australia in an aseptic package. Finally Peter went to Sanitarium to ask for a license; they were looking to expand internationally, so the timing was good. The final agreement gave Peter exclusive rights to sell So Good in the USA and Canada.

SoyaWorld Inc. was incorporated in Aug. 1996 with Dairyworld Foods and Sunrise each putting in money and owning half the shares. The new Soyaworld board of directors (4 people, two from each company) was formed at that time. Maheb moved from Dairyworld to SoyaWorld in late 1996. In mid-1997 Soyaworld got the license to make So Good from Sanitarium Foods (Australia). Test marketing of So Good began in mid-1997 (with the name Soyaworld Inc. on the package), then in Jan. 1998 the product was officially launched with a big TV advertising campaign. The humorous ad shows a cow confessing that she drinks So Good; it is even endorsed by cows! This may have been the first national mass market TV campaign for soymilk in North America. In late 1997 the Canadian government first allowed soymilk to be fortified with calcium and vitamins. This showed a weakening of their many laws designed to protect dairy products. Use of the word "milk" is still not allowed. Soyganic was launched in mid-1998.

Peter works closely with Dave Coe, who is the CEO and president of Dairyworld Foods and on the board of Soyaworld. He is the one who is responsible for the joint venture with Sunrise and for what is happening with Soyaworld–in a sense. Maheb is now working for Soyaworld as general manager and CEO; he no longer works for Dairyworld.

If a taste panel consisting of typical Canadians was asked to taste So Good and SoNice Vanilla, Peter thinks So Good would win. SoyaWorld plans to target So Good and SoNice to different markets. SoNice in Tetra-Pak cartons still has a very strong following among natural foods customers, but Soyaworld will try to sell SoNice in supermarkets as well as natural food stores in both fresh and UHT cartons. So supermarket consumers will have a choice. So Good is sold in both gable-top (fresh) and aseptic / UHT packages, but about 90% of the sales come from the fresh product. Peter would guess that the same would be true in the USA. Many Asian-Canadians love Soyganic, which has a beany flavor; they have grown accustomed to that taste. Address: General Manager, Sunrise Soya Foods, 729 Powell St., Vancouver, BC, V6A 1H5 Canada. Phone: 604-254-8888.

2616. Conquergood, George. 1999. SoyaWorld Inc. (Interview). *SoyaScan Notes.* May 28. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** SoyaWorld is only a marketing company. They are located at 4074 Lozells Ave. in Burnaby, a suburb of Vancouver on the eastern side of the city. Dairyworld Foods is also located in Burnaby. The city of Vancouver is located

just a few miles north of the Washington state border; to its west is water–the Straight of Georgia. Across the Strait is Vancouver Island. Surrey is a few miles southeast of Vancouver.

SoyaWorld occupies some small offices on the second floor of an old ice cream plant owned by Dairyworld Foods but now no longer operational and used by Dairyworld as a storage facility. About 8 people are employed by SoyaWorld and work in those offices. The president is Maheb Nathoo, and he goes to work there each day. One marketing person, one sales manager, one controller (accountant), etc. also work there. It is now clear to George that he will not be working for SoyaWorld. He had lunch with Maheb yesterday, and they have discussed this matter for months. They may still want to retain George as a consultant some day, or he may end up as their competitor in the soymilk business. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2617. Conquergood, George. 1999. SunRich, IPC, and soymilk (Interview). *SoyaScan Notes.* May 28. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** SunRich makes all the soymilk sold by Westbrae and George believes they make soymilk for many other companies. They have done so for at least several years. At one point in 1998 Lorne Broten negotiated with Allan Routh, president of SunRich, about buying IPC–or at least coming to their financial aid. Allan was interested in buying the "SoNice" brand–which is more precisely the "ProSoya SoNice" brand since "So Nice" cannot be registered as a trademark by itself. Allan wasn't interested in licensing or buying the ProSoya process; he apparently didn't want to pay Raj Gupta any money. Allan sent some of his soymilk to George; he wanted to know if George could formulate the SoNice product with his soymilk. George did so and was very impressed. In fact, he thinks it tastes very similar to that formerly made by IPC using the ProSoya process–though not quite as good, perhaps because of the formulation.

How would ProSoya find out if SunRich or any other company was using the patented ProSoya process? Raj Gupta says he can do a "footprint" of the product's flavor profile of any soymilk product [perhaps using chromatography] and tell in that way–with only the commercial product for evidence. But George has never seen any proof of this. If Raj is right, he would not have to send any "patent police" into a competitor's plant. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2618. Conquergood, George. 1999. How IPC made soymilk using the ProSoya process (Interview). *SoyaScan Notes.* May 28. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The washed and soaked soybeans are ground with cold water in a sealed chamber using an "airless cold grind" process. This slurry is piped, still in a sealed airless environment, into a cooker, where it is cooked with steam injection. The internal temperature being raised to 120ºC, it is held there for 3 minutes, then "flashed" into a vacuum chamber. Prior to this "flashing" step no air has come in contact with the slurry. The critical point for the lipoxygenase enzyme is when the bean is being broken or ruptured; after that is less critical. The soymilk is then separated from the okara, in a closed, fairly well sealed environment. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2619. Conquergood, George. 1999. The four main soy companies created by accountant Lorne Broten from 1994 to 1997 (Interview). *SoyaScan Notes.* May 29. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** After the many early companies–and shell companies–created by Lorne to raise money, he formed four main soy companies: (1) The first real company, Pacific ProSoya Foods Inc. was created in 1994. (2) International ProSoya Corp. (IPC) was formed in early 1996. (3) IPC Eastern was created a few months later–in about March or April 1996 when IPC purchased ProSoya's Ottawa plant. That became an operating company that operated the Ottawa plant. All of the employees were paid by IPC Eastern. (4) ProSoya Foods Inc. was formed by a name change in 1997; it had formerly been named Pacific ProSoya Foods Inc. That became the operating company for the western plants in British Columbia; it likewise paid those production employees. But any administrative staff, such as George, got paid by IPC. ProSoya Foods Inc. was also the marketing and sales company that sold the soy products. If another company purchased SoNice, they would get an invoice from ProSoya Foods Inc.

George thinks of the formation of these various companies as "shell games." It's a way of shuffling assets, borrowing money, etc. For example, you can borrow as much money as possible under one company name, then go borrow more under another name. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2620. *At Guelph (Ontario, Canada).*1999. Posthumous honorary degree: Charles Zavitz. June 2. p. 9.
• ***Summary:*** In the section titled "Awards and Honors" we read: "As OAC celebrates 125 years of partnerships and achievements in agriculture, dean Rob McLaughlin says

there is no better role model for the future than this eminent figure from the past."

"He introduced soybeans into Canada in 1925 [sic, 1893] and released OAC 211, the first soybean variety registered in Canada."

A photo (courtesy of Univ. of Guelph archives) shows the five young men in the first graduating class from OAC. Charles Zavitz is seated at far right. "On Oct. 1, 1888, he and his classmates received their degrees in a special ceremony at the University of Toronto, where Guelph degrees were conferred until the University of Guelph was established in 1964. Another notable classmate of Zavitz's was George Creelman, centre, who was principal of OAC from 1904 to 1920."

2621. Conquergood, George. 1999. IPC's nightmares packaging SoNice soymilk in Canada and the USA (Interview). *SoyaScan Notes.* June 2. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** In Nov. 1996, when IPC (International ProSoya Corp.) first launched SoNice (in 1 liter aseptic) in Canada, they were planning to make both a regular and a lite (with water added to reduce calories and fat per serving)–except nobody wanted the regular, they all wanted the lite. So they produced a Vanilla Lite and an Original Lite–but Canadian laws forbade them from call the original "original lite" because of some detail (long forgotten) concerning fat ratio. The chocolate and natural were always the "full formula." In the aseptic 250 ml size, introduced after the 1 liter as an emulation of it, they produced only Chocolate and Vanilla Lite.

Then in Jan. 1997 they followed with a refrigerated (gable-top) line in Canada, which bore a rondel in the lower left corner of the front panel; in a semicircle across the top was written "Canadian Technology" and in the center was a maple leaf. This refrigerated line reflected new formulations, with fortification. But the label didn't mention that it was fortified, except on the ingredient panel–because at that time (in 1997) the regulatory agencies in Canada forbade fortification of soymilk in Canada. Moreover, there are different labeling regulations in the USA and Canada. So IPC must package its soymilk for the American market in a different package, with no French text on half the package, and based on at least four different nutritional labeling rules. (1) The nutritional panel in U.S. products must bear the heading "Nutrition Facts." (2) The rules for rounding off nutrient values are different in the two countries. (3) The serving size is 1 cup (240 ml) in the U.S. vs. 250 ml in Canada. (4) The U.S. prefers quarts while Canada uses the metric system–like almost all other countries worldwide. These differences created a packaging nightmare for IPC.

When IPC originally launched the Canadian refrigerated line it was being packaged by Farmland in New Jersey. They were packaging only Canadian products. But when they launched these products in the USA it was another nightmare, because the packaging on these high-speed machines had to be changed from quarts to liters for the same flavor. So they decided to change the Canadian packaging to all quarts and half gallons–so Farmland didn't have to stop its machines to change packages by flavor. But they still had to change packages by country. The original Canadian refrigerated line in 1 liter gable-top packages was supposed to be packaged at the Beatrice plant in Ontario. You can tell this rare vintage of label because the Kosher symbol is "COR 110" in a circle.

Refrigerated products were first introduced to the U.S. market at the Natural Products Expo (Baltimore, Maryland) in Oct. 1997, and products were first shipped in November or December 1997. Note: On the 1 quart ProSoya SoNice soy beverage for the USA, the manufacturer is given as SoNice Soy Corporation, P.O. Box 93009, Langley (Vancouver), BC, V3A 8H2 Canada. But on the refrigerated 1.89 liter product for Canada the manufacturer is given as ProSoya Foods Inc., Surrey, BC, V3S 8E7. Why? At one point IPC had So Nice Soy Corporation marketing the product. This was a very short-lived print run; it changed as time passed, but its all basically the ever-changing IPC. So we're back to Loren Broten and his shell game. But to make things even more complex (and comical), the original processing plant at 19292 60th Ave. in Surrey is literally on the border between Langley and Surrey. Address: Vice-president Operations, International ProSoya Corp., 312-19292 60th Ave., Surrey (Vancouver), BC, V3S 8E5 Canada. Phone: 604-541-8633.

2622. Harrigan, Brian. 1999. How to buy a soymilk system made by ProSoya Inc. (Interview). *SoyaScan Notes.* June 7. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** All orders for SoyaCows of any size should be directed to ProSoya in Ottawa, Canada. The only ones they may not be able to accept are those for systems with a capacity of greater than 200 liters/hour that will be used in the USA or Canada; they must refer such orders to SoyaWorld in British Columbia. SoyaWorld might be interest in a joint venture but not in competitors.

The SoyaCow VS-40 system, which makes about 40 liters/hour of soymilk, sells for US$5,950, including the grinder-cooker, press, and 8 kilowatt electric boiler, but not including small utensils (such as plastic buckets and ladles) and the packaging equipment. The SoyaCow VS-30 has a propane gas boiler.

The SoyaCow VS-200, which makes about 200 liters/hour of soymilk, costs US$42,500, including an electric boiler. A "stripped down" model is available for $25,000; it includes no skid or boiler.

The soymilk that comes out of these two SoyaCow systems contains 8% soy solids. Since ready-to-drink

soymilk typically contains 5% soy solids, each system will make about 60% more ready-to-drink than its rated output. Address: Executive Vice-President, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2623. U.S. and Canadian public soybean breeders and geneticists (Database printout). 1999. 8 p.
• ***Summary:*** This table has four columns: (1) State abbreviation (e.g., FL, GA, IL). (2) Surname and initials of person, with surname listed first. (3) Full address, including ZIP / Postal code. (4) Phone, fax, and email. The entries are sorted by state abbreviation, and within each state by surname.

Alabama: V.T. Sapra, D.B. Weaver. Arkansas: D.K. Ahrent. W.L. Mayhew. C.H. Sneller, D. Widick. Delaware: R. Uniatowski. Florida: A. Zimet. Georgia: H.R. Boerma, R. Mian, W. Parrot, P.L. Raymer.

Iowa: S.R. Cianzio, W.R. Fehr, John Imsande, Marcia Imsande, R.G. Palmer, R.C. Shoemaker. Illinois: R.L. Bernard, B. Diers, T. Hymowitz, D.A. Lightfoot, O. Myers, R.L. Nelson, C.D. Nickell, M. Schmidt, R.J. Singh, L. Vodkin. Indiana: G.R. Bowers, Guodong Zhang, S.A. Mackenzie, N.C. Nielsen, J.R. Wilcox. Kansas: W.T. Schapaugh. Kentucky: D.E. Hershman, T.W. Pfeiffer.

Louisiana: B.G. Harville, S.H. Moore. Maryland: S.J. Britz, D.R. Buxton, P.B. Cregan, P. Dadson, T.E. Devine, J.M. Joshi, W.J. Kenworthy. Minnesota: J.H. Orf. Missouri: S.C. Anand, P.R. Arelli, K.M. Clark, R. Hofen, H. Minor, D. Sleper. Mississippi: T.C. Kilen, J.M. Tyler, B. White.

North Carolina: J.W. Burton, T.E. Carter. North Dakota: T.C. Helms. Nebraska: G.L. Graef, D.J. Lee, J.E. Specht, P. Staswick. Ohio: R.L. Cooper, J.J. Finer, R.J. Fioritto, D.G. Lohnes, S.K. St. Martin, T. VanToai, L.H. Edwards. Pennsylvania: O.E. Hatley, B.W. Pennypacker.

South Carolina: E.R. Shipe, H.T. Knap. South Dakota: R.A. Scott. Tennessee: P.M. Gresshoff, V.R. Pantalone. Virginia: P.S. Benepal, H.L. Bhardwaj, G.R. Buss, T. Mebrahtu, Pengyin Chen, N. Rangappa. Washington: T. Lumpkin.

West Virginia: R.W. Zobel.

Support Units: Illinois: W.E. Rayford, D.I. Thomas. Maryland: J. Strachan.

Foreign: Canada: G.R. Ablett, I. Rajcan, E.R. Cober, V. Poysa, D. Simmonds, H.D. Voldeng. Puerto Rico: S.R. Cianzio, S. Torres.

Retired Geneticists and Breeders: Canada: J.W. Tanner. Arkansas: C.E. Caviness. Iowa: D.E. Green. Pennsylvania: R.C. Leffel. Texas: R.D. Brigham.

2624. Harrigan, Brian. 1999. Re: Prices for VS 30/40 system and VS 200 systems sold in the USA: Quote USA/96A25. Letter (fax) to William Shurtleff at Soyfoods Center, June 25. 3 p.
• ***Summary:*** All orders for SoyaCows of any size should be directed to ProSoya in Ottawa, Canada. A VS-40 system with an 8 kW electric boiler costs US$7,000. A VS-2000 system with a 40 kW electric boiler costs $45,000.

Note from Brian. The prices for these systems are higher when sold to the USA than anywhere else in the world because of the 15% higher insurance premiums ProSoya has to pay and because litigation and other legal pursuits are a national pastime in the USA. The prices for the same systems sold anywhere else in the world are 15% less, i.e., $5,450 for the VS30 and $5,950 for the VS40. If the application is humanitarian, there is a 15% discount. There are also discounts for multiple orders. Address: Executive Vice-President, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2625. Affenito, Sandra G.; Derstetter, J. 1999. Position of the American Dietetic Association and Dieticians of Canada: Women's health and nutrition. *J. of the American Dietetic Assoc.* 99(66):738-51. June. [227 ref]
• ***Summary:*** Contents: Abstract. Introduction. Position statement: Cardiovascular disease, breast cancer, colorectal cancer, gynecological cancers (cervical, endometrial, and ovarian), osteoporosis, menopause and HRT, iron status, AIDS/human immunodeficieny virus (HIV), diversity, determinants of health, health promotion. Conclusion.

"The use of phytoestrogens? in the form of soy supplements for women taking tamoxifen is unclear??"

Mark Messina comments: Infuriating! They cited Petrakis & Phillips, which are the best two human studies to cite because they raise red flags, but they are about soy protein, not about soy supplements. The ADA's position is that all foods fit; there are no good or bad foods. They are generally opposed to the use of supplements/pills (even vitamins C and E), but they make an exception for calcium supplements. Address: PhD, RD, St. Joseph College, West Hartford, Connecticut, USA.

2626. Bulpitt, Christopher J.; Rajkumar, C.; Cameron, J.D. 1999. Vascular compliance as a measure of biological age. *J. of the American Geriatrics Society* 47(6):657-63. June. [64 ref]
• ***Summary:*** "Sir William Osler said, 'A man is as old as his arteries,..." Yet it is compliance in the aorta and the carotid artery that are most closely related to biological age–as opposed to chronological age.

Note: Dr. Osler, born 12 July 1849 in Ontario, Canada, has been called one of the greatest icons of modern medicine. He was one of the four founders Johns Hopkins Hospital in Maryland. Address: 1-2. MD, Section of Geriatric Medicine, Imperial College School of Medicine, Hammersmith Hospital, London, UK.

2627. *Canadian Soybean Bulletin (OSG, Chatham, Ontario, Canada).*1999. 50th anniversary of the Ontario Soybean Growers. 13(1):1. June.
• ***Summary:*** In 1949, when the Ontario Soybean Growers Marketing Board (OSGMB) was established, there were only 6,000 soybean producers in Ontario. They started OSGMB to deal with issues such as moisture discounts, maximum handling charges, grower payment terms, and to try to settle a dispute. These growers were also concerned that the industry's historic boom and bust cycle would lead to its downfall.

In 1948-49 these 6,000 growers produced 49,600 tonnes (metric tons) of soybeans on 94,000 acres, and exported less than 13,000 tonnes. They got a yield of 19 bushels/acre and received an average price of $84.50/tonne (Canadian dollars).

In 1998-99 there were 23,000 soybean producers in Ontario. They produced 2,343,300 tonnes (metric tons) of soybeans on 2,100,000 acres, and exported more than 650,000 tonnes. They got a yield of 41 bushels/acre and received an average price of $283.00/tonne. Thus soybean production in Ontario has increased more than 47-fold since 1948-49!

Note: This newsletter was previously titled *Canadian Export Soybeans.*

2628. *Canadian Soybean Bulletin (OSG, Chatham, Ontario, Canada).*1999. Services of the Canadian Grain Commission–Export soybeans. 13(1):1-3. June.
• ***Summary:*** Contents: Introduction to the CGC. Inspection services: Vessel shipments, truck, rail and container shipments. Special analyses. Oil and protein content. Monitoring services. Entomology services (insects). Verification/audit services. Genetic testing. Weighing services.

Concerning genetic testing: "The Chatham office is in the process of implementing test procedures aimed at the identification and certification of GMO/non-GMO (Roundup Ready) soybean shipments. Initially, testing will involve an ELIZA based method which, after internal evaluation is known to provide reliable detection at levels above 0.3%. In the longer term, the CGC will explore and move to alternative methods that will enhance its abilities in this area."

A photo shows Jim Lowe of the CGC as he shows samples of Canadian soybeans to members of the Japanese Tofu Association.

2629. *Canadian Soybean Bulletin (OSGMB, Chatham, Ontario, Canada).*1999. Canadian soybean exports. 13(1):4. June.
• ***Summary:*** A large table shows statistics on tonnes (metric tons) of soybeans exported to various countries, and regions, each year from 1994/95 to 1997/98. The countries are: In Asia–China, Hong Kong, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, and Thailand. In Western Europe–Austria, Belgium, Denmark, France, Germany, Italy, Netherlands, Norway, Portugal, and Spain. By continent–Africa, Central America, Eastern Europe, Middle East, Oceania, South America, and United States.

In 1997/98 the countries to which the largest amount of Canadian soybean exports went were (in tonnes): Norway 159,000, United States 134,706, Japan 62,931, Portugal 58,465, Spain 34,759, Hong Kong 23,210, Belgium 20,687, and Malaysia 20,539.

2630. *Canadian Soybean Bulletin (OSGMB, Chatham, Ontario, Canada).*1999. Serial/periodical. Chatham, Ontario, Canada: Canadian Soybean Growers' Marketing Board. Began with Vol. 13, No. 1 (June 1999).
• ***Summary:*** Continues *Canadian Export Soybeans.* Until June 1999 (Vol. 13, No. 1) this newsletter was published by the Ontario Soybean Growers' Marketing Board. At that time the publisher's name was changed to the Ontario Soybean Growers. Starting in the fall of 2001 the publisher changed to the Canadian Soybean Export Association (at the same address). The subtitle also changed to "The Export Newsletter of the Canadian Soybean Export Association." Address: Chatham, Ontario, Canada.

2631. Golbitz, Peter. 1999. Soybean superstar: Conferences push soy into the spotlight. *Bluebook Update (Bar Harbor, Maine)* 6(2):4-5. April/June.
• ***Summary:*** Contents: Introduction. Darling of the media. Starring role in food technology (IQPC is sponsoring Soyfoods '99 conference on 26-28 April in Chicago, Illinois). On a roll since last fall (in Sept. 1998 the Ontario Soybean Growers sponsored a Food Soybeans Conference & Tradeshow in London, Ontario, Canada; in Oct. the United Soybean Board sponsored a Soyfoods Symposium in Chicago). Chicago: Soy kind of town (Global Soy Forum '99 will be held Aug. 4-7). Soy Goes to Washington, DC (Third International Symposium on the Role of Soy in Preventing and Treating Chronic Disease, will be held from Oct. 31 to Nov. 3). The benefits of stardom.

2632. Hayes, Keri. 1999. Biosafety protocol is put on hold. *Bluebook Update (Bar Harbor, Maine)* 6(2):1, 7. April/June.
• ***Summary:*** Delegates from 174 countries gathered in Cartagena, Colombia, for 10 days of negotiations. Their goal was to establish international rules for handling, trading, and transporting living genetically modified organisms. But on Feb. 24 they suspended their talks. On one side of the debate was the "Miami Group" (USA, Canada, Australia, Argentina, Chile, and Uruguay) and on the other was all other countries, led by the European

Union–which is pushing for labeling of any products that contain GE ingredients.

2633. McLaughlin, Rob. 1999. Charles Ambrose Zavitz. Guelph, Ontario, Canada. 2 p. 28 cm.
• ***Summary:*** Citation honoring Charles Ambrose Zavitz on 11 June 1999 on the recommendation of the Senate of the University of Guelph, for the degree of Doctor of Science honoris causa, to be awarded posthumously. It begins: "Mr. Chancellor: On the recommendation of the Senate of the University of Guelph I have the honour to put forth the name Charles Ambrose Zavitz for the degree of Doctor of Science *honoris causa.* This degree will be awarded posthumously." A biography of Dr. Zavitz follows, including the following: "In 1893, Zavitz introduced soybeans into Canada. For the next 35 years, he evaluated, selected, and developed many lines. On Aug. 26, 1925, he released OAC 211, the first soybean variety registered in Canada. Also during this period, he was evaluating management techniques for soybeans, that is, planting dates, seeding rates, etc.

"Charles Zavitz was an early pioneer in the use of small plots for research, which were termed by detractors as 'little onion beds.' However, the uniformity of the soils in this procedure, his very accurate measurements, the cleanliness of his plots, and his extreme care ultimately proved his critics wrong. In addition, Zavitz was one of the pioneers in adapting to the new science of genetics, subsequent to the re-discovery in 1900 of the basic laws of inheritance by Mendel 35 years before. As early as 1902, Zavitz was engaged in controlled cross-fertilization of superior varieties in an attempt to produce new superior varieties. By 1920, about 50,000 hybrid plants were grown and examined annually.

"Charles Zavitz was made the First Canadian Fellow of the American Society of Agronomy in 1912, he received an honorary Doctor of Science from the University of Toronto in 1916, an honorary Doctor of Laws from the University of Western Ontario in 1935, and was inducted into the Canadian Agricultural Hall of Fame in 1967 [sic, 1974]. It is indeed fitting that, on the 125th anniversary of the Ontario Agricultural College, the University of Guelph chooses to add to these honours by awarding Charles Zavitz a posthumous honorary degree.

"Mr. Chancellor: On behalf of the Senate of the University of Guelph, it is my privilege to call on you now to confer posthumously on Charles Zavitz the degree of Doctor of Science *honoris causa.* The honorary degree will be accepted on behalf of the Zavitz family by James R. Zavitz who is the grandson of Charles Zavitz."

Note 1. Attached to this citation are two excellent color photos of James R. Zavitz, standing outdoors under trees, holding the award honoring his grandfather. Note 2. Talk with James R. Zavitz. 2001. Dec. 6. This citation was written and read by Rob McLaughlin, Dean of the Ontario Agricultural College–even though his name does not appear on the document. Address: PhD, Dean of the OAC, Guelph, Ontario, Canada.

2634. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. 1999 Project SOY winners announced. June. p. 8.
• ***Summary:*** Winner of the Diploma division was Ben Arnold with his Soyf's Up flutterboard [kickboard] made from soy-enhanced polyerethane. A photo shows Ben holding his board.

"Second place was awarded to the creator of Water Lily soy oil soaps. Spreadable butter made with soy oil captured third place.

"The undergraduate / graduate category was won by Valerio Primomo for his Soylight soybean candles. An edible soy protein coating used to protect foods from absorbing too much fat during deep frying, was awarded second prize. *SoyWorks,* a soybean research publication and SoYummy SoyPops, a tofu-based frozen fruit bar, tied for third place honors." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2635. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. Biotechnology and soybeans. June. p. 8.
• ***Summary:*** "In the soybean industry, Roundup Ready soybeans have taken the world by storm... Recent news out of many European countries, foremost being the United Kingdom, has catapulted the world of biotech soybeans into the minds of most consumers. However, what is in their minds is basically a non-acceptance towards biotech products, including soybeans.

"This has become a very emotional issue, and these issues are the most difficult to deal with rationally." A long discussion follows. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2636. Ontario Soybean Growers' Marketing Board. 1999. Tofu... Simply delicious (Brochure). Chatham, ONT, Canada. 12 panels. 21 x 10 cm each.
• ***Summary:*** This attractive color brochure features "8 simple and delicious recipes to tempt even the Tofu Timid." With each recipe is a color photo, a nutritional analysis, and a tofu preparation tips. Contents: Introduction. Buying and storing tofu. Choosing the right tofu. Tofu for your health. Tofu nutrition. Recipes: Tofu appetizer trio, Potato dill soup, Tofu & vegetable rice (with 2½ cups chicken broth), Tofu lasagna roll ups, Tofu tacos, Tofu chili, Tofu frosted chocolate cake, Peachy tofu pudding.

This brochure was created in partnership with Agriculture and Agri-Food Canada / Agriculture et Agroalimentaire Canada.

Note 1. A front-page article in the *Ontario Soybean Growers' Marketing Board Newsletter* (Aug. 1999), titled "New tofu brochure makes debut" states that this brochure "was completed in June, and mailed out to over 645 dietitians across Canada who had requested soy information from the Board in the past 18 months. The response has been phenomenal. These dietitians have already requested 30,000 brochures to hand out to their clients. That means that 30,000 more people will get ideas on how to use tofu, and they may come to appreciate this versatile product made from Ontario's number one cash crop." A black-and-white photo shows the cover of the tofu brochure.

Note 2. A second article in the *Ontario Soybean Growers Newsletter* (Oct. 2000, p. 9), titled "Soyfoods corner" states that since this popular recipe brochure was introduced in June 1999, over 85,000 have been distributed across Canada. A recipe for Peachy tofu pudding is given. Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: (519) 352-7730.

2637. Ontario Soybean Growers' Marketing Board. 1999. Fifty years of progress: A history of the Ontario soybean industry. 50th anniversary–Ontario Soybean Growers' Marketing Board, 1949-1999. Chatham, Ontario, Canada: OSGMB. 36 p. June. 28 cm.
• ***Summary:*** Editor: Janet Nauta. Contents: Message from the Ontario Minister of Agriculture, Food and Rural Affairs (Noble A. Villenueve). Message from the Minister of Agriculture and Agri-Food Canada (Lyle Vanclief). Chairman's message (Ken Bee). The Ontario Soybean Growers' Marketing Board–Five decades of progress (with highlights of each decade). Farm Products Marketing Commission–Involved since the beginning. Harosoy and more–Harrow Research Centre's role in soybean research. Soybean leaders–Chairmen of the Ontario Soybean Growers' Marketing Board. Research and variety trials in the east–Kemptville College's role. OMAFRA–Promoter of Ontario's "great export." Making the grade–The Ontario Grain Commission, Soybean research–Ridgetown College's contribution. Heading east–Short season soybean research in Ottawa. Ontario Grain and Feed Association–Past, present and future. From 1893 to today–The history of soybeans at the University of Guelph. Once upon a time: An interview with the oldest living Ontario Soybean Growers' Marketing Board director (Gordon Coutts, who became director in 1958). Early promotions–Call for soybeans (Ad from Victory Mills titled "Wanted: 3,000,000 bushels of soybeans"–from the 1945 crop).

Contains many color photos and 20 ads, some full page. Address: 180 Riverside Drive, Box 1199, Chatham, ONT N7M 5L8, Canada. Phone: 519-352-7730.

2638. Radov, Alexander. 1999. Obedy Podobedova [Podobedov's dinner parties]. *Sovremennye Otechestvennye Zapiski (Contemporary National Notes; Russia)* No. 1. p. 23-25. June. [Rus]*
• ***Summary:*** Alexander Vasil'evich Podobedov has pledged to feed Russia in 2-3 years, and to relieve the severe protein shortages; 75% of the population eats mostly bread, potatoes, and pasta. His answer: The soybean. In two years, Podobedov has established a new industry in Russia, feeding about one million people–using SoyaCow technology from ProSoya in Canada.

Note: This article appears in the section of the periodical titled "From the Rib of Adam Smith." Address: Russia.

2639. *Soybean Digest.*1999. Global Soy Forum: A roundup of the world's best soybean research. June. p. 5-7, 10-13, 16-17, 20, 22, 24-25, 28, 30, 32, 34, 36-37, 39-42.
• ***Summary:*** This special issue previews the forthcoming Global Soy Forum '99, to be held in Chicago August 4-7. It summarizes key papers to be presented. Contents: Let's face the challenge (p. 5). A special invitation to *Soybean Digest* readers, by co-chairs Dave Erickson and Long (p. 6). Program (p. 7). Genetic improvement (p. 10-13). Crop & soil management (p. 16-17, 20, 22). Pest management (p. 24-25, 28, 30). Processing and utilization (p. 32, 34, 36-37). Management & marketing (p. 39-42).

A pie chart (p. 5) shows world soybean production in 1997: USA 47%, Brazil 20%, Argentina 11%, China 10%, India 3%, Canada 2%, Paraguay 2%, EU [European Union] 1%, other 4%.

Note: This event is surrounded by an amount of hype usually not found with professional agricultural conferences. On page 6, co-chairs Erickson and Long state: "In August, you have an opportunity to be part of an event that soybean farmers will be talking about for years to come. Global Soy Forum '99–the first worldwide assembly of the soybean industry... this is truly the event of the century for our industry. We're expecting 1,000+ participants, representing more than 45 countries..."

Note: What nonsense! In fact, this is the sixth World Soybean Research Conference. The constitution of the World Soybean Research Conferences states that they will be held "about every five years to consider research progress since the previous conference." The first such conference was held on 3-8 Aug. 1975 at the Ramada Inn in Champaign, Illinois (USA), and sponsored by four U.S. organizations, including the University of Illinois; 622 people from 48 countries attended. The second was held in 1979 at North Carolina State University (USA). The third was held in Aug. 1985 at Iowa State University, Ames, Iowa (USA); 1,050 persons from 66 countries attended. The fourth was held in March 1989 in Buenos Aires, Argentina–for the first time outside the USA. The sixth was held in Feb. 1994 in Chiang Mai, Thailand.

Like most past World Soybean Research Conferences, this one focuses on soybean production, and has relatively little about soybean utilization or soyfoods. One paper in the Utilization section is titled "Is tofu safe to eat?"

2640. Demos, Steve. 1999. New developments at White Wave (Interview). *SoyaScan Notes.* July 7. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Discusses: Soy yogurts and spoonable desserts in different parts of the world. DairyWorld Foods in Vancouver, BC, Canada, and their So Good brand. Sunrise Soya. Hired Fred Webster. Imagine Foods building new offices in Palo Alto. Rice beverages are now almost dead; fired all of its reps. 3-4 companies that are bigger than Dairyworld. Bernard Storup. Suiza and Dean Foods. Mark Retzloff. Paul Repetto. Silk is now #1. Spence was a Nielsen offshoot. He who gets to TV first. No public offering–Strategic partner on board. Address: President, White Wave Inc., 1990 North 57th Court, Boulder, Colorado 80301.

2641. McLennan, Neil. 1999. Re: Upgrading tofu equipment at Clean Bean Tofu in London, England. Letter to William Shurtleff at Soyfoods Center, July 25. 1 p. Typed, with signature on letterhead.
• ***Summary:*** Neil is currently considering buying a ProSoya VS200 system made in Ottawa, Canada. Address: 37e Princelet St., London E1 5LP. Phone: 0171 247 8349.

2642. Bernard, Richard L. 1999. Re: Information on large-seeded soybeans. Letter to William Shurtleff at Soyfoods Center, July 27–in reply to inquiry of Aug. 30. 2 p. Handwritten on letterhead.
• ***Summary:*** He encloses a list of some additional soybean varieties that Shurtleff may wish to consider for inclusion in his "large-seeded" list. He also encloses a report he made at this year's soybean breeder's conference that includes a table for food-type US and Canadian public varieties and their year of release.

He includes key pages from several RSLM [Regional Soybean Laboratory Mimeograph] documents showing when the term "Maturity Group" was first used. "If you consider 'Maturity Group I' and 'Group I Maturity' to be roughly equivalent, then the 1953 report RSLM 168 is the first, since it was the first germplasm report ('Maturity Group' was used for the Uniform Tests much earlier).

Page 2, titled "Additional varieties to consider."

Hahto released in 1918 by USDA. Copy of publication enclosed.

Agate released in 1937 by USDA.

Morse & Cartter 1937.

Tortoise Egg released in 1938 by Illinois AES [Agricultural Experiment Station], listed in Woodruff & Klaas.

Kabott released in 1939 by Ag Canada (new name), Ottawa, in 1949 Bulletin 1520.

Also listed in Bulletin 1520 and in most cases in Morse's 1948 list of "Soybean varietal names used to date" (RSLM 148, 9 p.):

Etum, released by 1941 by USDA, 23 gm per 100 seeds.

Green & Black, released in 1941 by private, Tennessee, 24 gm per 100 seeds.

Hidatsa, released in 1941 by private, North Dakota, 18 gm per 100 seeds.

Jefferson, released in 1941 by private, Tennessee, 33 gm per 100 seeds.

Kanum, released by 1941 by USDA, 19 gm per 100 seeds.

Sac, released in 1941 by Iowa AES, 26 gm per 100 seeds.

Sanga, released in 1945 by private, Illinois, 28 gm per 100 seeds.

Tastee, released by 1941 by USDA, 22 gm per 100 seeds.

Wolverine, released in 1941 by USDA, 26 gm per 100 seeds.

"I've used a secondary source of info, so you'd better check the original publication in each case. Hope this is useful. Dick B." Address: Prof. of Plant Genetics (Retired), Dep. of Crop Sciences, AW-101 Turner Hall, Univ. of Illinois, Urbana, IL 61801-4798.

2643. Kulisek, Larry. 1999. Master promoter: Windsor history–F. Maclure Sclanders. *Windsor Star (Essex County, Ontario, Canada).* July 31. p. I14. Saturday.
• ***Summary:*** Sclanders was born on 26 Sept. 1868 in Glasgow, Scotland. In about 1908 he introduced soy beans to the prairie states of Canada–probably Saskatchewan or Manitoba. Address: Prof., Univ. of Windsor, Windsor, Ontario, Canada.

2644. Urquart, John. 1999. A health food hits big time: Taste makeover moves soy milk into mainstream. *Wall Street Journal.* Aug. 3. B1, B4.
• ***Summary:*** Sales of soymilk in the USA are predicted to top $300 million in 1999, up 38% over 1998, and a rise from only $2 million in 1980–according to Soyatech Inc. of Bar Harbor, Maine. Sales of Silk, the soymilk product that pioneered the new and booming refrigerated category, are expected to double this year, says Steve Demos, president of White Wave. Silk is now distributed through dairies across the U.S. Sales of Vitasoy in the USA rose 34% during the last year, according to Jennifer Corsiglia Keim, the company's marketing manager.

Indeed soymilk is one of the few products that has been able to cross over from natural- and health-food stores into supermarkets. One of the keys to this cross-over is expected

to be the change of packaging and positioning. Traditionally soymilk was sold in "special airtight boxes that require no refrigeration." Now, starting with Silk, it is being sold next to milk in cartons that look like milk cartons. Imagine Foods of Palo Alto is currently introducing a refrigerated version of its Soy Dream brand of soymilk. White Wave plans to hand out several million half-pint samples of Silk during the next 12 months to further stimulate demand. He says he has been making soyfoods for the last 21 years just "waiting for this year."

One reason for the growing interest in soymilk is the growing body of scientific evidence showing that soy has health benefits. Former junk-bond king Michael Milken, who was diagnosed with prostate cancer six years ago, tries to consume 40 grams of soy protein per day–including a soy hot dog and soy shake. Another reason is improvement in the taste of soymilk. Soymilk sales are expected to get another boost if the U.S. Food and Drug Administration allows a health claim saying that soy products reduce cholesterol.

Soymilk is also being promoted in coffee houses. About one year ago Peet's Coffee & Tea (Berkeley, California) introduced Vitasoy as a coffee creamer at its 47 coffeehouse outlets. The consumer response has been "terrific."

In Canada, the soymilk market is also booming; it grew 75% Last year and is expected to grow at about the same pace for the next 4-5 years–according to Maheb Nathoo, CEO of the new SoyaWorld Inc. of Vancouver, British Columbia. SoyaWorld now advertises its soymilk on television. A cow, with its face disguised, confides in an interview on the beverage: "I tried it. I liked it. That's all I can say.

But compared with dairy milk, soymilk still has a minuscule share of the market; cows still supply 99% of the milk market.

The high price of soymilk remains a problem. In some places it can cost twice as much as cow's milk. But prices have dropped to about half their level a decade ago in the USA. In Canada, So Good, made by SoyaWorld Inc. using soy protein isolates, has recently been selling at Loblaw's Ottawa (Ontario) superstore for the same price as cow's milk. Address: Staff Reporter.

2645. Nordquist, Ted. 1999. Soymilk in America–past and future: The soymilk wars are heating up. Part I (Interview). *SoyaScan Notes.* Aug. 10. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** After SoyaWorld was created in Vancouver (BC, Canada), because ProSoya was developing soymilk in Vancouver, they needed a quick way to get soymilk on the market. So they started negotiating with Ted to see if he could start sending soybase up to Vancouver from California. Then Sanitarium Foods (from Australia) came into the picture and threw a lot of money towards SoyaWorld, encouraging them to purchase a license to make So Good using soy protein isolates. This would also be Sanitarium's entry into the USA and North America. SoyaWorld took this approach and because of Dairyworld Foods' excellent distribution system, So Good has done very well in Canada. Their aim is to work down into the United States; they have been trying to negotiate with Suiza Foods Corp., but Suiza has its own ideas. Ted has heard that Sanitarium is involved in a lawsuit over its So Good soymilk, perhaps with SoyaWorld, because they believe that SoNice is an infraction on the name of their So Good product–SoNice and So Good are too close.

Soy is really getting into the mainstream now. Ted's company has done a lot of market studies in supermarkets and the presence of soymilk is "essentially zero." The big change will take place over the next year as soymilk starts to enter the dairy case of supermarkets. Ted is aware that Horizon has its eyes on this market. SoyaWorld is powerful, but they are up against Dean Foods, Suiza, and others. Wait until November or December of this year to see what is going to happen. Ted may be part of the action or he may get squashed–like the bug under your carpet.

Ted learned a lesson when he was making Silk for White Wave; they came out with a different product, and it didn't seem to matter much to consumers that it wasn't as good, as long as it was approximately as good. Money, labeling, distribution, networking, etc. determine the success of a product. Ted designed Silk with a very low solids content (4% solids) for very specific reasons. The main reason was money–so the product could be sold at a competitive price. But with the FDA health claim anticipated, Imagine Foods now has 7 grams of protein per serving, and White Wave's Silk soymilk has 5-6 grams of protein. You cannot use the health claim if a product contains 6.25 grams of protein per serving, because that is rounded down to 6 grams on the label. So you must have a label that states 7 grams of protein. As the solids content of a soymilk rises, any beany flavor is harder to mask, so the flavor of the soybase becomes more important, and the formulation less important. And the flavor of the soybase becomes even more important with soy yogurt, and even more important with soy ice cream–because both have higher solids content. So, if one were rational and logical, the trend toward higher solids would give Ted an advantage. Ted disagrees strongly with Steve Demos who thinks that the soybase and the formulation are of about equal importance in determining the flavor of the final product. Ted believes that the soybase contributes about 80% of the final flavor and the formulation about 20%. Steve's Silk soymilk is now made by SunRich, in Minnesota. The only other companies that make what Ted considers an acceptable soybase are Pacific Foods of Oregon, and Imagine Foods.

If SunRich were using ProSoya's airless technology and if ProSoya took SunRich to court, Raj Gupta would argue that he patented his oxygen-free process in 1988. Alfa-Laval could go to ProSoya and say that they were selling a plant that made soymilk using an oxygen-free process before that patent was instigated, and they demonstrated that plant at an international conference in 1984. The process was not patented, but it was described in published literature and was well known. To get a patent, Raj Gupta had to prove that there was no prior art; thus Ted believes that the ProSoya patents are not valid. Ted and Raj planned to do a joint venture at one time, but they disagreed on many processing issues. His process is based on the *concept* of an oxygen-free grind, but it is not strictly so. Then he makes claims that you don't have to soak the beans, etc. So there are many things that the patent office has accepted in his patent that Ted believes would not stand closer scrutiny.

Ted has compared his soybase with that made by the ProSoya process; he believes that his is much better. Shurtleff says that he always assumed that the reason Ted used the ProSoya process in Vancouver to make Silk was because it was better than his own. Ted laughs and laughs. The real reason he didn't make the soybase himself was because he had no equipment or plant with which to make it.

Ted started to develop Silk using soymilk made by Pacific Foods of Oregon. Even when he was still in Sweden in the late 1980s, he began to cooperate with them in developing a soy ice cream. Ted bought soybase from all over the world to compare it with the soybase he was developing in Sweden. He ended up using Pacific Foods' aseptically packed soybase (containing only soybeans and water) as a control for his Tofu Line and Swedish Glass ice creams. So when he came to the California in the early 1990s, his goal was to make soy beverages, yogurt, and ice cream. When Ted started doing his work in Gustine, he was using Pacific Foods' soybase. They even had an agreement on the cost of the soybase, the fact that he would be buying it in tankers, etc. The first samples Ted sent to Steve Demos were made with Pacific Foods' soybase. But when the person who finally bought the product made from that soybase turned out to be Steve Demos, then Pacific Foods of Oregon backed off. They didn't want to make soybase for a competitor in the soymilk market. So Ted had to look for a new supplier, and he came into contact with ProSoya in Surrey, near Vancouver. At that time, they were just starting up their soymilk plant and they were really naive; they could make soymilk on a small restaurant scale, but they knew almost nothing about making soymilk on a large commercial scale in a continuous process. It was a nightmare for them at the beginning. Ted did not help them with their process; he just sent them orders, which forced them to get their act together because Ted needed to buy 6,000 gallons (one tanker full) at a time. As ProSoya was learning, Ted was starting to building his own plant, but he couldn't do that until he had money, and his money would have to come from sale of ProSoya soybase to Steve Demos. So Ted went to ProSoya, not because they made better soymilk but because he didn't have the money to do it any other way. Continued. Address: TAN Industries, Inc., 49 Stevenson St., Suite 1075, San Francisco, California 94105-2975; 660 Vischer Ct., Sonoma, CA 95476. Phone: 415-495-2870.

2646. Nordquist, Ted. 1999. Soymilk in America–past and future: The soymilk wars are heating up. Part II (Interview). *SoyaScan Notes.* Aug. 10. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** If Ted had had a lot of money at the beginning, would he have done things differently? Answer: That's an interesting question. ProSoya went bankrupt in large part because they built the plant first and then went out to sell the product. Ted learned in Sweden that its much better to sell the product first, then build the plant once you have the volume. In Sweden, Ted found a juice company in which to install his machines; in the USA he found Soyfoods of America (owned by Ken Lee) in Duarte, California. Ken Lee is now selling a huge volume of soymilk in half gallon containers. It is produced using the same equipment he uses to make soymilk for tofu, and sells for some ridiculously low price–like $0.89 per half gallon. He distributes it all himself, and also makes a lot of tofu and related products.

Shurtleff says: "Within the next 12 months, I think we are going to see the biggest expansion and changes yet in the soyfoods industry. Companies that sell soymilk but have no fresh product in gable-top cartons will almost surely lose market share." Ted agrees; hang on. Ted adds that finding available extended shelf life (ESL) gable-top packaging equipment in California is impossible today. There are no machines available. Dean Foods has no such packaging equipment west of Colorado; their plants in Kentucky and Florida are both full. Even if they wanted to add a line on the West Coast, it would take about 12 months. Suiza Foods Corp. could add on a new line to their plant in California–and they now know how to make good soymilk because of Ted–whether he likes it or not. Bill notes: "As we shoot the rapids during the next 12 months, I hope your kayak comes out right side up." Address: TAN Industries, Inc., 49 Stevenson St., Suite 1075, San Francisco, California 94105-2975; 660 Vischer Ct., Sonoma, CA 95476. Phone: 415-495-2870.

2647. Mair, Amy Tyler. 1999. Appetizing growth: Profile–Yves Potvin. Yves Potvin's meatless cuisine is North America's best-seller. Now he's looking for the recipe for a winning, healthy fast-food restaurant. *Business in Vancouver (Canada).* Aug. 10-16. p. 23.

• ***Summary:*** Yves Potvin, age 43, never uses the word "vegetarian" in his speeches or marketing materials. He is a "semi-vegetarian," who eats little red meat and is looking for healthy food choices. He now runs a business that does an estimated $46 million per year in sales. Earlier this spring he opened fast food restaurants in Kitsilano and South Granville, Vancouver. There he serves only meatless foods, such as tofu hot dogs, soy burgers, meatless lasagna, and baked fries [French fries]. Fourteen years ago, the Quebec native, a chef and amateur cyclist, "was living in Vancouver and dishing up buttery sauces at former French restaurant Le Chef et Sa Femme. Disillusioned with the high-stress low-paying job," he looked for a way to be more independent. "With $10,000 of his own money and $30,000 borrowed from friends and family," Potvin developed a tasty meatless hot dog.

"The next several years were difficult after Potvin sold 40% of his company to finance growth." He later bought back the shares and today owns 100% of the company. The company also took a hit when it spent $600,000 in R&D for a new veggie burger that went nowhere. 1992 was the year of "take-off"–the "year they crossed a major threshold and really began to grow." In 1985, when Yves Fine Food opened, the company saw its first product, a tofu wiener, as a "fusion food and adopted a sun logo to symbolize the marriage of East and West." Last year the company adopted its current logo, which shows a "French chef sporting a red beret and holding a basket brimming with fresh vegetables."

A large photo shows Yves.

2648. *SoyaScan Notes.*1999. Sunrise Markets Inc. in Vancouver, British Columbia, Canada (Overview). Aug. 25. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** The company check gives the address as 729 Powell St., Vancouver, BC, V6A 1H5 Canada. Phone: 604-253-2326. But the company letterhead says: Corporate office: 733 Powell St., Vancouver, BC, V6A 1H5 Canada. Telephone: 604-254-8888. Facsimile: 604-251-1083. Sunrise Soya Foods. Mandarin Soyfoods. Pacific Soyfood Specialties. All 3 are divisions of Sunrise Markets Inc.

Internet: www.sunrise-soya.com. E-mail: sales@sunrise-soya.com. Address: Sunrise Markets Inc., 729 Powell St., Vancouver, BC, V6A 1H5 Canada. Phone: 604-254-8888.

2649. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. Licensed soybean dealers as of July 23, 1999. Aug. p. 2-3.
• ***Summary:*** Contains a list of all 227 licensed Canadian soybean dealers, including the cities in which they are located. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2650. ProSoya Inc. 1999. Introduction to ProSoya (Color videotape). 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. 8 minutes. Aug.
• ***Summary:*** This excellent color video (in NTSC video format), is professionally produced and narrated, with nice background music. Introduced in August 1999, it begins: "The soybean is a powerhouse of high-quality protein and other nutrients. Soyfoods have been proven to reduce the risk of cancer, heart disease, and other ailments. These health advantages, coupled with relatively low infrastructure and production costs, make soybean processing a fast-growing industry–and we can help you make this a wonderful business opportunity in the 21st century. Welcome to ProSoya, a world leader in advanced soymilk technology.

"Dr. Raj Gupta, a scientist formerly with the National Research of Canada and McGill University, is the president and founder of ProSoya." He appears and says: "Our objective is to help you produce nutritional* soya foods and beverages that consumers will enjoy because they taste good."

"ProSoya creates innovative and cost-effective processing systems that produce an excellent soymilk base naturally from the raw soybean. The first soymilk systems were small, designed primarily for humanitarian aid, hospitals and small businesses. Today, ProSoya offers the widest range of soymilk production capacities, from modest 30 liters-per-hour batch processors to large, fully automated industrial plants with capacities up to 4,000 liters per hour. The smallest system is a 2-liter prototype that NASA tested for its manned space mission to Mars. ProSoya offers individual production components or complete turnkey plants, and can also assist in the formulation and packaging of soymilk beverages and foods.

"ProSoya's commitment to its customers is demonstrated by its vigorous research and development program. In addition to its own in-house R&D team, ProSoya engineers work closely with researchers in various government laboratories and other industry partners around the world. At the heart of all ProSoya systems is the patented airless cold-grinding process–a truly revolutionary technology invented by Dr. Gupta... The resulting soymilk is free from the beany flavor or chalky mouthfeel. Bill Shurtleff, world-renowned expert on soyfoods and author of over 50 books comments: 'I have no hesitation in saying that ProSoya's airless cold-grind process is one of the best for making soymilk.'

"The soymilk base can be used as is, or to create a whole range of healthy, nutritious, high-quality soyfoods, including beverages, tofu, yogurt, ice cream, soymilk powders, and mayonnaise."

There follows a list of systems designed and sold by ProSoya. "ProSoya delivers reliable equipment and prompt technical support." "Brian Harrigan, an engineer with an

MBA degree, is the executive vice-president and director of marketing. 'At ProSoya we don't just sell equipment. We build relationships. Our pride is in the contribution we can make to the success of our clients.'"

"ProSoya technology is presently being used in more than 30 countries. There are large-scale processing plants in Canada, Russia, and Scotland. Over 500 other small to medium-scale plants are benefitting people on five continents. This is what some of our clients have to say." There follow three glowing testimonials.

"In Canada, the retail sales of soy beverages increased from $12.1 million in 1997 to $25 million in 1998, a growth rate of 106%. Are you ready to take advantage of the booming soyfoods industry? ProSoya, with its market-leading technology, continuing R&D, and highly trained personnel can be your ideal partner in pursuing the opportunities which await us in the new millennium." Address: Ottawa, Ontario, Canada.

2651. Laidlaw, Stuart. 1999. Where the guest of honour is food that caused a revolution: Celebrating an Ontario college with a taste for innovation. *Toronto Star (Ontario, Canada).* Sept. 14.
• ***Summary:*** A special variety of barley and dozens of other innovative crops will be guests of honour at a banquet later this week when the Ontario Agricultural College (OAC) celebrates its 125th anniversary. The banquet (for about 600 students, alumni, professors, and industry representatives) will consist of dishes made from these special crops. The OAC was founded at Guelph after a failed attempt to set up an agricultural college at the University of Toronto. Its researchers have developed more than 100 food crops, including soybeans that can survive Canada's colder climate.

The college's most significant discovery was one of its first–barley OAC 21–developed by Charles Zavitz in 1910 after 20 years of research, using seeds he imported from Russia and Manchuria. It soon became the dominant barley crop in Ontario and set the standard in the beer-brewing industry for the next 50 years. It remained the barley of choice until the 1960s, when improved varieties were bred from it. Address: Business reporter.

2652. Harrigan, Brian. 1999. Re: Overview of utilization ProSoya's equipment abroad. Letter (fax) to William Shurtleff at Soyfoods Center, Sept. 22–in reply to inquiry. 1 p. .
• ***Summary:*** 1. Commercial vs. non-profit: Of the machines ProSoya has sold directly, about 80% were sold to commercial firms and the remaining 20% to non-profit organizations. If we include the machines that have been made and sold by the Russians and Indians under license from ProSoya (over 500 SoyaCows), these can be estimated at 70% commercial and 30% non-profit.

2. Type of product produced: Soymilk beverage production 50%. Tofu production 40%. Other soyfoods 10%.

Use in developing vs. developed countries: In terms of value, about 75% is in developing countries. In terms of number of liters, about 90% is in developing countries.

There are presently about 250 locations or clients using ProSoya's equipment worldwide, with about 175 of these in Russia alone. Address: Executive Vice-President, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2653. Ontario Soybean Growers. 1999. Canadian soybeans (Ad). *Soya & Oilseed Bluebook* 2000. p. 104.
• ***Summary:*** This one-third page black-and-white ad states: "High quality, food grade soybeans for the production of tofu, miso, natto, soymilk, soy sprouts, soy sauce, tempeh and other soya products. Soybeans for the crush market. Identify preserved (I.P.)–Specialty soybeans. Organic and transitional soybeans. Container–Bag/bulk. Bulk vessel.

"Trusted, reliable, supplier of soybeans to the world for over 25 years.

"For more information or a list of suppliers contact: Canadian Soybean Export Association." Address: P.O. Box 1199, Chatham, Ontario, Canada N7M 5L8. Phone: 519-352-7730.

2654. Soyatech, Inc. 1999. Advertiser index. *Soya Bluebook Plus* 2000. p. 431.
• ***Summary:*** Ag Processing Inc. Allocco S.A. American Health & Nutrition Inc. AMG Inc. Anderson International Corp. ADM Lecithin. Archer Daniels Midland Co. B.N.W. Industries. Baker Process. BAR N.A., Inc. Bean Machines, Inc. Behlen Mfg. Co., Biostar. Borton, Inc. Breitenbach GmbH, Leonhard. Brown Company, Charles. Buhler Inc. Campro International Inc. Cargill, Inc. Center for Crops Utilization Research. Ceval Alimentos S.A. Clarkson Grain Co., Inc. Cleary Products, Inc., W.A. Clofine Dairy & Food Products, Inc. Codema, Incorporated. Core Team, The. Damman-Croes N.V. De Smet SA/NV, Extraction. Divine Engineering, Inc. Edelsoja GmbH. Elementar Americas Inc. Europa Crown Ltd./Crown Iron Works Company. First Line Seeds. Frank, Fa. L.I. French Oil Mill Machinery Company, The. Fundiciones Balaguer, S.A. Genetic ID. Grain Systems. GTS Energy Inc. Guelph Food Technology Centre. H&H Company, Inc. HI Roller Enclosed Belt Conveyors. Identity Seed & Grain Company. Indiana Crop Improvement Association. INHSA. Innomach Inc. Insta-Pro International. International Soybean Program (INTSOY). InterSystems, Inc. Iowa Soy Specialties, LLC. Jeneil Biotech, Inc. Kice Industries, Inc. Klein Commodities. Krupp Extraktionstechnik GmbH. Laidig Industrial Systems. Louisville Drying Machinery. Lucas Meyer GmbH & Co. Mason Manufacturing. Metal Products International,

Inc. Midwestern Soybeans International, Inc. Midwestern Soybeans International, Inc. Millbank Technology (N.Z.) Ltd. Miracle Exclusives, Inc. Monsanto Company. Montola Growers Inc. Moore & Associates, Inc., N. Hunt. Natural Products Inc. Norseman Inc. Northland Seed Corp./ Northland Organic Foods. Nosawa & Company, Ltd. Oil Mill Gazetteer. Oil-Dri Corporation of America. OntarBio Organic Farmers' Co-operative Inc. Ontario Soybean Growers. Pacific International Distributors (PID). Prater Industries, Inc. ProSoya, Inc. R&D Equipment Sales Company. Riceland Foods, Inc. Riley Equipment, Inc. Roskamp Champion. S. Howes Company, Inc. Sato & Company, Ltd. Schouten USA Inc. Separators, Inc. SK Food International. Soyatech, Inc. Specialty Proteins. Strayer & Associates, Dennis. SunRich Inc. Sweet Manufacturing Company. Tecno Moageira Ltda. Tetra Pak Inc. Texas A&M University. Thompson & Sons Ltd., W.G. Tobe Products. Tradin Organic Agriculture B.V. Tramco Inc. Turner Chilled Rolls Ltd. U.S. Soy. United Soybean Board. VIGAN Engineering S.A. Walzen Irle GmbH. Westfalia Separator, Inc. Westway Terminal Co., Inc. Woodson-Tenent Laboratories, Inc. Younglove Construction Company. Address: 7 Pleasant St., P.O. Box 84, Bar Harbor, Maine 04609. Web: www.soyatech.com. Phone: 207-288-4969.

2655. Stephens, Arran. 1999. Journey to the luminous: Encounters with mystic adepts of our century. Seattle, Washington: Elton-Wolf Publishing. xi + 371 p. Illust. No index. 23 cm. [20 ref]
• ***Summary:*** A remarkable book about the author's spiritual Master, Sant Kirpal Singh, his master Hazur Baba Sawan Singh, and his successors, Darshan Singh, and Rajinder Singh. The author lived, traveled, and practiced meditation in India with Kirpal Singh, describes many spiritual experiences and events. Address: Vancouver, BC, Canada.

2656. Lagnado, Lucette. 1999. Group sows seeds of revolt against genetically altered foods in U.S. *Wall Street Journal*. Oct. 12. p. B1, B4.
• ***Summary:*** Last week at the Blue Mountain Center in upstate New York, 22 participants from 12 countries gathered to plot the first all-out assault on the U.S. biotech food industry. The retreat was organized by a group of American activists who believe the moment is ripe for a U.S. campaign. Benny Haerlin, the international coordinator for Greenpeace in Berlin, Germany, is credited with directing a similar successful campaign in Western Europe. Pat Mooney, a Canadian who runs the Rural Advancement Foundation International, is credited with coining the word "terminator" to describe an experimental gene technology owned by Monsanto that could create sterile seeds.

The U.S. food industry is tense about this issue. Half of the nation's soybean crop contains transplanted genes–as does one-third of the corn crop. Those crops turn up in countless common food products, including the corn syrup for Coca Cola, and McDonald's hamburger buns.

A spokesman for Novartis says that biotech agriculture already has many proven benefits, including a major reduction in pesticide use, in soil erosion, and in water pollution, and a major increase in yield. Address: Staff reporter.

2657. AGP–Ag Processing Inc a cooperative. 1999. Annual report: Partners in food production. 12700 West Dodge Road, P.O. Box 2047, Omaha, Nebraska 68103-2047. 32 + 19 p. 28 cm.
• ***Summary:*** Net sales for 1999 (year ended Aug. 31) were $2,094.504 million, down 20.0% from $2,615.077 million in 1998. Net earnings before income taxes: $18.167 million, down 68.5% from the $57.526 million in 1998.

"Since its formation in 1983, AGP has been committed to the success of its owners. Today that is 278 local cooperatives and eight regional cooperatives, representing 300,000 farmers from 16 states throughout the United States and Canada" (p. 1).

AGP has expanded into "Soy-based methyl ester products, used primarily in the fuels, solvents, and agricultural chemicals business (as an adjuvant)." This is a growing new value-added market (p. 3).

"AGP's investment in a methyl ester plant at Sergeant Bluff, Iowa came at a time when companies could not use methyl esters because there was not a consistent supply. Now soybean oil in the form of biodiesel (SoyGold) is breaking into the diesel market as a lubricity agent in premium diesel offered by major fuel suppliers" (p. 5).

AGP works "intimately with the American Soybean Association. This year that relationship was able to produce legislation in Congress that allowed 20% biodiesel blends to be designated as alternative fuels country-wide" (p. 13).

"Methylated seed oil (MSO) adjuvants faced a difficult time this year primarily because MSO is not suitable for use with Roundup (c). AGP did, however, gain more MSO distributors this year" (p. 18).

AGP's new soybean processing plant in Hastings, Nebraska, began operating "in June 1999. It is: The first farmer-owned soybean processing plant in Nebraska. The westernmost soybean processing plant in the United States. AGP's ninth soybean processing plant. Once the plant is operating at capacity, an estimated 200+ trucks will be at the Hastings location daily, either inbound with soybeans, corn, or milo and/or outbound with soybean meal, soybean oil, ethanol, and other products such as hulls or distillers' dried grain with solubles."

Color photos show: (1) Leiting and Lindsay. (2) Marketing materials for AGP's "Soybean Value Pricing–Oil Premium Program." (4) The board of directors. (5)

Management staff–including one woman for the first time. Address: Omaha, Nebraska. Phone: (402) 496-7809.

2658. *Modern Woman (Canada).*1999. The Canadian Grand Prix New Products Awards. Oct.
• ***Summary:*** This year Yves Veggie Breakfast Links was a winner. Former winners were Veggie Ground Ground, Veggie Burger Burgers, and Veggie Pepperoni Slices. A photo shows the products in their packages.

2659. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. The GMO issue–Tough choices for producers. Oct. p. 5.
• ***Summary:*** "Last year approximately 5% of the total soybean acreage in Canada were GMO varieties, while this year that number was between 15-20% of total soybean acreage. Next year will be very interesting to see producers' response to the consumer backlash of GMO's."

"When Archer Daniels Midland (ADM) urged, even warned their U.S. suppliers last month to begin segregating GMO soybeans, corn and other grains from conventional crops, it sent shudders through the U.S. farming community."

"This is not an issue of right or wrong, it is an issue of consumer demands, and the consumer is demanding non-GMO products." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2660. *Ontario Soybean Growers' Marketing Board Newsletter.*1999. Profiles: Mike Snobelen, owner of Snobelen Farms, a non-GMO exporter. Oct. p. 7.
• ***Summary:*** "The safest bet for many farmers hoping to profit from the introduction of biotechnology may, ironically, be to plant non-biotech crops.

"The strategy is reaping dividends in Huron and Bruce Counties, where 500 growers this year contracted to deliver non-Roundup Ready soybeans for a 40 cent per bushel premium to Snobelen Farms elevators at Lucknow, Ripley and Dungannon."

"'This is a customer-driven business,' Snobelen says. 'It has nothing to do with whether biotechnology is good or bad. It's whether biotechnology is what the consumers want.'"

"Snobelen started non-biotech sales with two boatloads shipped in 1997 with the help of marketing firm Manna International. Six boatloads from the 1998 crop were shipped to the UK and Belgium, and three vessels are already booked for 1999 crop, with more sales in the works."

"To date, most Snobelen exports have gone to soymilk makers. Now, the company sees that market widening out. There is more interest in using non-biotech soybeans for bread improvers."

A portrait photo shows Mike Snobelen. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2661. Yves Veggie Cuisine. 1999. Prepare for the soy explosion (October 26, 1999): Stock up on Yves products early (Leaflet). Delta, British Columbia, Canada. 1 p. 28 cm.
• ***Summary:*** This one-sided leaflet, is printed with blank ink on pea-green paper, discusses the FDA announcement expected to occur on 26 Feb. 1999. "Soy protein may reduce the risk of heart disease. Eating Yves Veggie Cuisine may reduce the risk of coronary heart disease, the single leading cause of death in America." The slogan on the bottom reads: "Yves takes great taste to heart." Address: 1638 Derwent Way, Delta, BC V3M 6R9 Canada. Phone: (604) 525-1345 or www.yvesveggie.com.

2662. *Nutrition Business Journal (San Diego, California).*1999. SunRich acquired by NASDAQ company [Stake Technology Ltd. of Ontario, Canada]. 4(10/11):22-23. Oct/Nov.
• ***Summary:*** In July 1999 Stake Technology Ltd. (Norval, Ontario, Canada) acquired SunRich Inc. in a stock-for-stock deal. Stake is an environmental company with technical expertise in steam explosion pulping, cleaning of metals, and recycling. In 1998 it had revenues of $14 million. SunRich, a $35 million niche producer, makes various soy products and contracts with 700 growers in the Midwest. Soy products comprise approximately 60% of SunRich's sales, and soymilk contributes approximately 20%, according to Allan Routh, president and CEO. SunRich makes three basic categories of soymilk: a standard [dried] product used as an ingredient in second generation products; several soy beverages; and soymilk with various protein and fat contents.

SunRich was founded [as Minnesota Waxy Corn Growers Export Inc.] in 1978, and changed its name to SunRich in 1994. Some 30-40% of SunRich's revenue's are international, primarily from Japan, reflecting its roots as an exporter. Less than a year ago, SunRich launched its own retail division, Hearty & Natural.

Note: Talk with Allan Routh of SunRich. 2001. Nov. 6. The acquisition was finalized on 1 Sept. 1999.

2663. Elwell, Christian. 1999. Chronology of South River Miso Co. Part III. 1983-1999 (Interview). *SoyaScan Notes.* Dec. 16. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Continued: 1983 spring–The miso company sends out a very interesting and poetic hand-lettered, dated leaflet and price list. The front panel, with a logo of three waves in a circle, announces the availability of three kinds of miso: Mellow Barley (6 weeks), Mellow Brown Rice (6 weeks), and Mellow Flint Corn (8 weeks). "South River

Farm is the coming together of three families seeking common livelihood." A pie chart shows the company's costs.

1983 summer–The first in-depth story about the miso company, with five good photos, appears in *Soyfoods* magazine. The article states that the company (whose name is incorrectly given as "South River Farm Miso Company") is owned by three families, and the names of the six owners are given. Actually, however, Christian and Gaella were (and have always been) the company's only legal owners.

1983 fall–The community idea fails after one miso season (1982-83). The Wheelers leave first. Anpetu and Hannah leave in the fall of 1983; Anpetu writes a sad poem about falling leaves as they part. It takes the Elwells 10 years to repay the money the other two families had invested.

1983 Sept.–Christian goes to Charlie Kendall, who lives nearby, and asks if he can supply Charlie with rice koji for the amazake he makes. Charlie had been buying all his rice koji, dried and in bulk, from Miyako Oriental Foods in California. Christian offered to match Miyako's price and make the koji from organic rice. Christian was already making rice koji for his red miso and he needed more customers. After making many trial batches and building a koji dryer, Christian begins supplying Charlie with 900 pounds (three 300-lb batches) of koji at a time. Also that second miso season (1983-84) the first apprentice, Sonia Schloeman, works at the miso shop; Christian needs help and Sonia needs a place to stay. He pays her a salary and she stays in the loft above the shop. After Sonia leaves, the Elwells move into the loft above the shop. The second intern was Dan Hornack, who came all the way from Aspen, Colorado. From then on the arrangement was room (in the cabins across the river) and board plus a small stipend in exchange for the apprenticeship. Other apprentices who worked in the shop over the years have included (in chronological order) Rich Sweitzer and Susan Gribbon (later to marry), Michelle Gemme (Montreal, Canada), Don Phillips, Michael Dessen, Tim Langdon, John and Mary Granger, Caroline Wurts, Maggie Smith, Andrew Goodman, Tolly Gibbons (New Zealand), Anne Walsh Sullivan, Bobby (age 18 and white, from South Africa), Sean LePoutre, Maria Low, Kamil Bersky (a medical doctor from the Czech Republic), and Stephen Jannetta. Stephen worked at the shop for two seasons (Oct. 1990 to May 1991, and Sept. 1993 to May 1994), then helped others (Soyalab, and La Fonte della Vita) to start commercial miso production in Italy. His brother, Phil Jannetta, worked for Mitoku in Tokyo. Most apprentices stayed for one full miso season. Gaella cooked for everyone.

1983 Oct. 17–Isaiah, the Elwell's second child is born.

1983 Nov.–The company runs its first ad (1/3 page vertical) in *East West Journal*. The theme: "Wisely given miso gives its own wisdom." An illustration at the bottom shows the miso shop buildings. A logo at the top shows three waves in a circle.

1985–Starting this year, a group of students from the Kushi Institute at Becket, Massachusetts (which is about 1½ hours drive away) comes to visit to miso shop–even though Christian has had no personal connection with the macrobiotic movement for many years. Over the years, the number of groups has increased to 3-4 a year. In the early years, Christian would give a slide show and talk on miso-making. Now they usually come on a weekend and take a tour of the shop when it is not in production, and Christian will share with them what he has learned about miso.

1989-90–The Elwells, with the help of Fred Hubbard, design and begin building a timber-frame home located behind the miso shop–about 12 feet away from it. For the previous 5 years they had lived in the loft above the miso shop. Fred eventually built his own home in Conway, where he now resides as a carpenter and builder.

1991-92–The Elwells stop taking apprentices and start with paid workers. There was a difficult period of transition as Christian began to tire of working in the shop. Workers include Larry Glanz, a former student who worked with Muramoto-sensei and Stephen Jannetta.

1995 Aug.–Christian seriously considers selling his miso company to Barry Evans, owner of American Miso Co. and Great Eastern Sun in North Carolina. He had taken training to become a Waldorf School teacher. But this would require the Elwells to give up their land, and although it was quite isolated, they did not want to leave it.

1995 fall–Yukio Doyama begins to work at the miso company, a happy, hard-working man who enjoys making miso. At the same time, Steve Freiman comes to live above the miso shop and work with Yukio. Christian was now freed up for an extended time from day to day production and packing work; he began taking a more supervisory role and handled most of the office work and shipping. Andy Mathey followed in Steve Freiman's position, working with Yukio.

1996-97–This fiscal year the miso business is computerized. In late 1997 Christian decides not to sell the miso company, and to invest much more energy, time and resources in it–"to make it come alive again" after a period of hibernation. "When we clear up things inwardly, this is reflected by outward things." Quickly, all sorts of good new things begin to happen.

1998 Feb.–The first issue of *River Currents: News from South River Miso Company* is published. This attractive newsletter contains a catalog and order form, plus news about miso and the company.

1997-98 fall and winter–Three young people come to live at South River Farm to cultivate the land–and to work on forming a community. Arthur Lerner comes first, then his partner, Emily Kellert, and soon after, David Fisher. That winter these three also work part time in the miso shop.

Robin Cole, a friend of many years, arrives in early spring of 1998 and creates the position of office manager/ administrative assistant.

June 1998–The Elwells and coworkers finalize a mission statement for the miso company after three months of weekly meetings. It is published in the winter (Dec.) 1998 issue of *River Currents*.

1999 Sept.–The apprenticeship program is reinstated; Maria Rossi is the first to fill the position.

1999 Dec. 16–Christian says that the miso company, about to enter its 21st year or adulthood, is taking on a life of its own. Gaella was never a regular miso maker in the shop. In the early years she was a full-time mother and cooked hundreds of meals for builders and then miso apprentices. Her role has always been one of moral support. This year she does work in the shop two afternoons a week on the packing crew. The many new people are contributing to the growth of the miso company as a "learning organization" (see *Fifth Discipline*, by Peter Senge).

South River Farm is now moving in the direction of being home to self-sustaining farmstead–"as the place in which South River Miso is planted." David Fisher has built a pole barn, gotten draft horses, pays a modest lease, and sells his organic produce. Address: Founder and Owner, South River Miso Co., South River Farm, Conway, Massachusetts 01341. Phone: (413) 369-4057.

2664. Yoshihara, Lulu. 1999. Re: Update on Shin-Mei-Do Miso Company. Letter to William Shurtleff at Soyfoods Center, Dec. 17. 1 p. Handwritten, with signature.
• ***Summary:*** Last May, Lulu and Yoshi went to visit their miso mentors at Maruman Miso Company in Iida City, Nagano prefecture, Japan. Their factory was completely rebuilt. They also have a very attractive booklet describing research on the health benefits of miso–all in Japanese. Lulu is now in her third year of studies at the University of Victoria, working towards a degree in Pacific and Asian studies, with a concentration in Japanese. Their eldest son, Hikari, is at the University of California at San Francisco doing a PhD in molecular biology.

Yoshi continues to make miso the way he always has, slow and steady. Gradually Shin-Mei-Do has more Japanese customers seeking out their miso, but the health food stores are their mainstay. The company's new website is Shinmeidomiso.com.

Their friend Jerry Lewycky is "getting into miso in a big way. He should be very successful. Sincerely, Susan Marie (aka Lulu) Yoshihara."

Talk with Yasuo (nickname "Yoshi") Yoshihara. 2000. Jan. 13. Lulu's maiden name is Susan Marie Pritt. Jerry Lewycky (pronounced le-WIK-ee) used to run a wholesale company in Toronto that used to distribute Yasuo's miso. He sold his company, studied miso making with Yasuo for about a week, then started to make miso last summer in Claremont (near Toronto), Ontario. He wants to run a small company that makes miso in the traditional way. Yasuo does not consider Jerry a competitor. Address: Shin-Mei-Do Miso Co., 3906 Wren Rd., Denman Island, BC, Canada, V0R 1T0. Phone: 250-335-0253.

2665. *SoyaScan Notes*.1999. Chronology of major soy-related events and trends during 1999 (Overview). Dec. 31. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** April–Kevin Cross sells Soy Power Co., Inc. in Santa Monica, California, to Nature's Best.

May 10–SoyaWorld Inc. of Burnaby, British Columbia, Canada, purchases the SoNice brand and two soymilk extraction plants from International ProSoya Corp. (IPC). SoyaWorld is jointly owned by Dairyworld Foods (the largest dairy and food company in western Canada) and Sunrise Soya Foods (Canada's largest tofu manufacturer). SoyaWorld plans to (and has the ability to–because of Dairyworld Foods) put fresh and Aseptic soymilk in every supermarket and grocery store in Canada. Then they will move into the USA. This is a very big story!

July 12–Deutsche Bank, one of its strongest advocates of ag biotechnology, issues a report in which it reverses its previous "buy signals" on many of the companies commercializing ag biotech (such as Monsanto and Pioneer Hi-Bred). It now urges caution, and signals the beginning of trouble for the ag biotech industry.

Aug. 18–White Wave (Boulder, Colorado) and Dean Foods (Franklin Park, Illinois) jointly announce that Dean Foods has created an alliance with White Wave by becoming a minority shareholder in White Wave. The two companies will work together to place Silk soymilk into the refrigerated dairy case of supermarkets across America–and try to get there before SoyaWorld of Canada. A very big story for soymilk in the USA.

Sept. 1–Stake Technology Ltd. (Norval, Ontario, Canada) acquires SunRich Inc. (Hope, Minnesota) in a stock-for-stock deal.

Sept.–In this month's issue of *Consumer Reports*, a 6-page article on genetically engineered (transgenic) foods titled "Seeds of Change" recommends that "federal officials should require that all foods containing genetically engineered ingredients be labeled as such, including milk with recombinant bovine growth hormone."

Oct. 1–DuPont (a large chemical company) buys the 80% share of Pioneer Hi-Bred International Inc. that it doesn't already own–a major move into biotechnology.

Oct. 4–The Kellogg Co., maker of breakfast cereals in Battle Creek, Michigan, agrees to buy Worthington Foods for $307 million. Worthington makes vegetarian meat alternatives.

Oct. 7–The *Wall Street Journal* runs a major front-page story on concern about and opposition to genetically engineered foods in the USA and Europe. Runs two more

such stories on Nov. 30 and Dec. 14. Dec.–During the last 6 months of 1999 consumer awareness of and concern about genetically engineered food issues in the United States has increased dramatically. It has moved from a counter-culture to a mainstream concern, and fairly large amounts of money are now flowing into antibiotech organizations. GMO was a widely discussed issue in the breakdown of and mass demonstrations against the World Trade Organization talks in Seattle, Washington.

Oct. 20–The U.S. Food and Drug Administration (FDA) announces its approval of a health claim for soy protein and coronary heart disease. The claim, which goes into effect Oct. 26, can be used on food labels in either of two formats, the first of which is: "25 grams of soy protein a day, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease. A serving of (name of food) supplies ___ grams of soy protein." This promises to have a huge, positive impact on the soyfoods market.

Dec.–General Mills acquires Small Planet Foods (Cascadian, Muir Glen) for $60 million.

Dec.–Kellogg Co. purchases Worthington Foods.

In 1999, for the first time in history, more acres were planted to soybeans in the USA than to any other crop. U.S. soybean acreage exceeded that of corn by 3% and that of wheat by 34%. Worldwide, the acreage planted to soybeans has increased fivefold since 1950.

2666. *SoyaScan Notes.*1999. Major soy-related company acquisitions and mergers worldwide 1990-1999 (Overview). Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** 1990 Jan.–Worthington Foods acquires La Loma Foods of Riverside, California (formerly Loma Linda Foods, owned by the Seventh-day Adventist Church).

1990 (early)–Daniel Gevaert purchases the Lima Andiran site at Andiran (near Mezin) in southern France from Lima Foods–but not the Lima trademark. In June 1990 Daniel and his wife, Valerie, established Danival.

1990 Aug. 3–Hong Kong Soya Bean Products Co. Ltd. (makers of Vitasoy soymilk) acquires Nasoya Foods of Leominster, Massachusetts.

1990 Dec. 21–The Haldane Foods Group (a subsidiary of British Arkady Ltd., which is in turn owned by ADM) acquires Unisoy Milk 'n' By-Products Ltd. of Cheshire, England.

1991 Jan. 1–The Haldane Foods Group acquires Granose Foods Ltd. of Watford, Hertfordshire, England (formerly owned by the Seventh-day Adventist Church).

1991 Jan. 28–Tetra Pak International acquires Alfa-Laval AB.

1991 April–Huegli Naehrmittel A.G. acquires Soyastern Naturkost GmbH / Dorstener Tofu Produktions GmbH.

1991 Dec.–Specialty Food Ingredients (SFI) Europe BV acquires Solnuts BV (Netherlands) and Solnuts Inc. (Hudson, Iowa).

1992 Oct.–Central Soya Co. acquires the Protein Division of Aarhus Oliefabrik in Denmark.

1993 June–Vitasoy purchases Azumaya Inc. (America's largest tofu manufacturer, and the low-price leader) in California, for an estimated $4-$5 million. Vitasoy is now in the tofu business.

1993 June–21st Century Foods acquires Farm Foods from Barricini Foods.

1993–House Foods of Japan purchases the remaining 50% of House Foods & Yamauchi, Inc. from Mr. Shoan Yamauchi. The new company is named House Foods American Corporation.

1993 July–Nutrition et Santé (part of the Sandoz Group) acquires Société Soy of Saint-Chamond, France. The latter company was renamed Nutrition et Soja, and on 15 Oct. 1994 it moved into a new factory at Revel (near Toulouse), France.

1993 (mid)–B & K Holdings of Switzerland acquires Sojinal of Issenheim, France.

1993?–Kineret (pronounced kuh-NAIR-et) Acquisition Group acquires Farm Foods from 21st Century Foods, then in Nov. 1993 the Hain Food Group acquires Kineret plus some assets of Barricini Foods Inc.

1996 April 22–Alpro (Belgium) purchases Sojinal (France).

1995 April 21–Irene and Len Stuttman buy back control of their company, INARI Ltd. (dba. Sycamore Creek) from J. Charles Follett (former CEO) and Peter L. Pairitz (accountant).

1995 April–Quest International, a unit of Unilever, acquires A.E. Staley's Gunther Products Division.

1997 Feb. 3–Monsanto purchases Asgrow Seed Co. from Seminis Inc., a subsidiary of Empresas La Moderna, S.A. (ELM).

1997 Aug. 24–DuPont signs a letter of intent to acquire Protein Technologies International, a wholly-owned subsidiary of Ralston Purina Co.

1997 Oct. 14–The Hain Food Group acquires Westbrae Natural, Inc., makers of soymilk. Westbrae's new name becomes Hain Food Group–Westbrae. 1997 Dec. 3–DuPont finalizes its purchase of Protein Technologies International (PTI–the world's leading manufacturer of soy protein isolates).

1998 Oct. 16–Worthington Foods purchases the Harvest Burger product line from ADM; by agreement, ADM will continue to make the Harvest Burgers at its Illinois plant.

1998 Dec. 31–DE-VAU-GE acquires Bruno Fischer GmbH, which sells bottled soymilk; both companies are located in Germany.

1999 Jan. 4–W.G. Thompson & Sons Ltd. of Blenheim, Ontario, Canada, purchases Sycamore Creek Co., a maker of soynuts and soynut butter (located in Mason, Michigan).

1999 Oct. 4–The Kellogg Co. (famous maker of breakfast cereals, Battle Creek, Michigan) buys Worthington Foods Inc., America's leading maker of meat alternatives.

2667. **Product Name:** Yves Veggie Wieners.
**Manufacturer's Name:** Yves Fine Foods Inc., a subsidiary of Yves Veggie Cuisine.
**Manufacturer's Address:** 1638 Derwent Way, Delta (Vancouver) V3M 6R9, B.C., Canada. Phone: 604-525-1345.
**Date of Introduction:** 1999. December.
**Ingredients:** Water, soy protein isolate, wheat gluten, yeast extract, wheat starch, salt, evaporated cane juice, spices, carrageenan, wheat germ, rice starch, beet root powder, nutritional yeast, natural liquid smoke, paprika. Vitamins and minerals: Vitamin B-1 (thiamine hydrochloride), vitamin B-12 (cyanocobalamin), pantothenic acid (calcium pantothenate), potassium (dipotassium phosphate).
**Wt/Vol., Packaging, Price:** 6 wieners in 9.7 oz (275 gm) package. Retails for $2.39 (1999/12, Lafayette, California).
**How Stored:** Refrigerated.
**New Product–Documentation:** Product with Label purchased at Safeway supermarket in Lafayette, California. 1999. Dec. 5. 5 by 5 inches. Vacuum pack. Purple, black, and red on white. Color photo of a wiener in a bun with a wavy bead of mustard on top, surrounded by trimmings. "Made with soy protein. Soy–With naturally occurring isoflavones. Fat free. No preservatives. Cholesterol free." The back panel states: "For best results, steam over boiling water for 3 minutes." Can also boil, microwave, or barbecue. "Printed on recycled paperboard with vegetable based inks." UPC indicia.

2668. **Product Name:** Yves Deli Slices (Original Style).
**Manufacturer's Name:** Yves Fine Foods Inc., a subsidiary of Yves Veggie Cuisine.
**Manufacturer's Address:** 1638 Derwent Way, Delta (Vancouver) V3M 6R9, B.C., Canada. Phone: 604-525-1345.
**Date of Introduction:** 1999. December.
**Ingredients:** Water, isolated soy protein, wheat gluten, evaporated cane juice, natural flavors, salt, yeast extract, carrageenan, wheat germ, onion powder, rice starch, beet root powder, garlic powder, wheat starch, nutritional yeast, spices. Vitamins and minerals: Vitamin B-1 (thiamine hydrochloride), vitamin B-12 (cyanocobalamin), pantothenic acid (calcium pantothenate), potassium (dipotassium phosphate).
**Wt/Vol., Packaging, Price:** 10 slices in 5.5 oz (155 gm) package. Retails for $2.19 (1999/12, Lafayette, California).
**How Stored:** Refrigerated.
**New Product–Documentation:** Product with Label purchased at Safeway supermarket in Lafayette, California. 1999. Dec. 5. 4.75 by 3.75 inches. Vacuum pack. Light blue, blue, yellow, black, red, and green on white. Color photo of folded deli slices in a sandwich (whole wheat bread with sesame seeds) with trimmings. A box in the center of the label boldly proclaims on a yellow background: "Made with heart healthy soy protein. Diets low in saturated fat and cholesterol that include 25g of soy protein per day may reduce the risk of heart disease. One serving of this product [4 slices = 62 gm] provides 6.25g of soy protein. * Proposed FDA product claim as of October 1, 1999." Also on the front panel: "Soy–With naturally occurring isoflavones. Fat free. No preservatives. Cholesterol free." The back panel states: "Printed on recycled paperboard with vegetable based inks." UPC indicia.

2669. Yves Veggie Cuisine. 1999. Good food. For a change (Portfolio). Delta (Vancouver), B.C., Canada. 28 inserts. 31 cm.
• ***Summary:*** In the center of the cover the company logo, "Yves Veggie Cuisine," shows a Frenchman, wearing a beret, carrying a basket of vegetables. At the top and bottom is a border of alternating purple and light purple stripes. The documents enclosed in this portfolio include: (1) Company backgrounder (3 p. company history). (2) Yves Potvin: President and founder, Yves Veggie Cuisine (1 p. biographical sketch). (3) Awards and achievements (3 p., most recent first). (4) Guide to healthy eating (1 p.). (5) Product information. (6) Product information: Veggie wieners (1 p.). (7) Veggie Wieners (1 p. front and back, color photos of 5 products plus product information). (8) Ad–"You'll be going for breakfast with your customers" (1 p. front and back, Veggie Breakfast Links, color photo and product information). (9) Product information: Veggie slices (1 p.). (10) Veggie Slices (1 p. front and back, color photos of 4 products plus product information). (11) Ad–"Go ahead, ham it up." Veggie ham slices (1 p. front and back with color photo). (12) Ad–"More of a good thing." Veggie Turkey Slices. (13) Product information: Veggie burgers. (14) Ad–"Great taste. More choice" (1 p. front and back. Color photos show 5 types of fat free Veggie Burger Patties). (15) Veggie burgers (1 p. front and back, with color photos). (16) Product information: Veggie ground round, Original or Italian. (17) Veggie ground round (1 p. front and back, with color photos). (18) Product information: Entreés (1 p., 4 types). (19) Perfecto Pasta. Enjoy the benefits of soy! (1 p. color, front and back). (20) Definition of ingredients (2 p). (21) Eight articles, photocopies. Address: 1638 Derwent Way, Delta (Vancouver) V3M 6R9, B.C., Canada. Phone: 604-525-1345.

2670. **Product Name:** Balance Outdoor (All Natural Energy Bar) [Honey Almond].
**Manufacturer's Name:** Balance Bar Co. (Distributor–Made in Canada).

**Manufacturer's Address:** Carpinteria, CA 93013. Phone: 1-800-678-4246.
**Date of Introduction:** 1999.
**Ingredients:** Toasted soy pieces, EnergySmart (mixed fruit juice concentrates and natural grain dextrins)*, organic brown rice syrup, soy protein isolate, almond pieces, whey protein concentrate, calcium caseinate, organic agave nectar, FruiTrim (mixed fruit juice concentrates and natural grain dextrins)*, whey, honey, ground almonds. Contains 2% or less of: Soy cotyledon fiber, natural flavors, rice flour, soy lecithin, canola oil, flax seeds, salt, mixed tocopherols. * = Registered trademarks of Advanced Ingredients, Inc.
**Wt/Vol., Packaging, Price:** 1.76 oz (50 gm) wrapped in foil. Retails for $0.99 at Trader Joe's (2000/04, Lafayette, California).
**How Stored:** Shelf stable.
**Nutrition:** Per 50 gm.: Calories 200, calories from fat 50, total fat 6 gm (9% daily value; saturated fat 1 gm), cholesterol < 5 mg, sodium 140 mg (6%), potassium 250 mg (7%), total carbohydrate 21 gm (dietary fiber 3 gm [12%], sugars 12 gm), protein 15 gm. Vitamin A 0%, vitamin C 0%, calcium 10%, iron 8%. Percent daily values are based on a 2,000 calorie diet.
**New Product–Documentation:** Product with label purchased at Trader Joe's in Lafayette, California. 2000. April 23. This is a baked, uncoated bar. Label text: "15 gm protein. Sustained energy. All natural–nothing artificial. Uncoated, will not melt. Hunger satisfaction and sustained energy. Sweetened without refined sugars. 40-30-30 balanced nutrition. 15 gm of high quality protein. Your complete satisfaction guaranteed." A simplified illustration on the front panel shows a rayed sun rising over mountains, with a river in the foreground. Soyfoods Center Taste Test. Delicious, but much too sweet for our tastes. It is called an Outdoor Bar because it does not have a chocolate coating, which melts.

2671. McEwen, Freeman; Morrison, Douglas; Rennie, Clare; Tanner, Jack. 1999. 125 years of achievements: OAC–A proud tradition, an exciting future, 1874-1999. Guelph, Ontario, Canada: University of Guelph. 132 p. Illust. 22 x 28 cm.
• ***Summary:*** Contents: 1. New beginnings. 2. Administration and co-ordination. 3. Teaching. 4. Research. 5. Extension and service. Within these are 125 achievements, each covered on one page; the page number is the same as the number of the achievement. Thus, achievement no. 56 appears on p. 56. The soybean is the subject of or mentioned in five of these achievements, all within Chapter 4, "Research" (p. 56-109) as follows:

OAC 211 soybean (p. 56): This is the first achievement described under "Research." A photo shows Charles Zavitz (seated at his desk), the pioneer in bringing soybeans to Canada. Zavitz graduated in OAC's the first degree class in 1888 and was hired by the College as an assistant experimentalist in charge of field plots. In 1893, the same year he was put in charge of all field research at OAC, Zavitz obtained five soybean varieties from Dr. C. Georgeson of Kansas State Univ. In 1898, after five years of trial, he reported that Early Yellow was the highest yielder. Over the next few years Zavitz introduced approximately 100 new soybean lines from Asia, and in 1901, through the Experimental Union, soybean seed was sent to farmers for evaluation. Like most plant introductions, these soybean lines were not pure lines, but contained some "off types," so Zavitz made pure-line selections from some of these lines. Initially Zavitz selected OAC 111 from Early Yellow. Then in 1918, he made 34 selections from 10,000 plants of the introduction, Harbaro [sic, Habaro] No. 10405. The progeny of 22 of these lines were tested under uniform conditions. The line that produced the highest yields was placed in regular variety trials in 1921; it beat all other varieties in grain yield and was second in fodder production. Designated OAC 211, it became the first soybean variety registered in Canada–on 26 Aug. 1925. During the years when Zavitz was evaluating soybean varieties, he was also researching soybean management techniques. The first commercial production of soybeans in Ontario took place in 1925 in Essex and Kent counties. By 1932 production in the province was almost 8,000 acres; by 1940 it was 10,000 to 11,000 acres, and by 1997 it had skyrocketed to 2.3 million acres, "the largest of any crop in Ontario. Zavitz would have been proud!"

Early OAC forage varieties (p. 57). About the work of Prof. O.M. McConkey, with a portrait photo. He joined the Field Husbandry Dept. in 1923.

Soybean expansion in Ontario (p. 65): Three men were pioneers in trying to expand soybean production in Ontario. Prof. George Jones, who joined the department in 1952, believed soybean production could be greatly expanded from the 200,000 acres then being grown. Prof. Jack Tanner joined the department in 1963, and Prof. David Hume arrived in 1966. But many problems stymied their efforts. Two events changed the environment for soybean expansion. First, as the corn crop expanded, it paved the way for soybeans (see p. 69). "Second, Dr. Harvey Voldeng, soybean breeder at the Central Experimental Farm in Ottawa, released the varieties Maple Arrow and Maple Glen." "These new varieties provided the final piece of the 'production package' which included varieties with a good yield potential, improved techniques for inoculating seed and improved herbicides for selective control of weeds. Confident that the production package was complete, Prof. Hume and his cohorts moved aggressively to promote it directly to farmers through farm meetings, field demonstrations, and FactSheets and indirectly through extension personnel and industry specialists. In 1997, approximately 2.3 million acres of soybeans were planted

between Windsor and the Ottawa Valley and more land was planted in soybeans than in any other cash crop." A photo shows Prof. Hume discussing soybean varieties and management practices at a growers' meeting.

Zoning for crop variety recommendations (p. 72): Discusses the Crop Heat Unit System and shows two maps where climate zones are delineated by heat units. This heat unit system, used for hybrid corn recommendations since 1964, was now applied to soybean varieties.

Improved soybean varieties (p. 73): From 1980 to 1997 Ontario's soybean acreage increased fourfold. Improved varieties were developed by the OAC Department of Crop Science. Most important, they were higher yielding, but also more resistant to lodging, to *Phytophthora* root rot and to other diseases. Prior to 1983, only 3 soybean varieties had been released from OAC. Since then 44 have been registered. This highly effective soybean breeding program was started by Prof. Wally Beversdorf, then successively led by Profs. Jack Tanner and Bruce Luzzi. The best variety to date has been OAC Bayfield, which out-yielded existing varieties by 15%. In 1998 it was grown on 400,000 acres in Ontario–the biggest soybean acreage for a soybean variety in Ontario. Other important varieties have been OAC Eric and OAC Millennium. In 1997 the soybean crop in Ontario was worth $800 million. A photo shows Wally Beversdorf inspecting soybean plants.

Accommodating to Canada's cold climate (p. 83): In the late 1960s, Prof. J.W. Tanner began to study cold tolerance in soybeans. Prof. D.J. Hume researched the physiological basis for cold tolerance exhibited by some of the soybean varieties–developed by Dr. Harvey Voldeng of Agriculture Canada, Ottawa–which had the Swedish variety Fiskeby V as a parent. The gene for chilling tolerance had come from a soybean variety from Hokkaido, Japan, in the 1940s.

An improved soybean rhizobium: 532C (p. 93): Some Rhizobium strains are more effective that others in fixing atmospheric nitrogen. In the early 1980s Prof. David Hume, Dep. of Crop Science, began to screen for more effective strains of soybean rhizobia. He obtained a number of strains from Dr. Joe Burton of the Nitragin Company in Milwaukee, Wisconsin, and by 1988 found that one strain, 532C, supported better yields (7% higher) and higher protein contents than other strains tested. It was promoted to commercial inoculant companies in North America. By 1990, all the soybean inoculants sold in Canada contained 532C. It is estimated that 532C occupies about 30% of the soybean-growing soils in Ontario and most of Quebec. Address: Univ. of Guelph, Guelph, Ontario, Canada.

2672. Okura Boeki-cho (Ministry of Finance, Division of Trade). 1999. Miso yûshutsu tsûkan jisseki–Heisei 10 nen [Japan miso exports worldwide in 1998]. Tokyo, Japan. 1 p. [1 ref. Jap]

• ***Summary:*** This 1-page table, written in Japanese, gives the exports of miso to various countries, in calendar year 1998, by region. We will list them here in descending order of volume by region–in kilograms. Asia: Taiwan 349,591. Hong Kong 332,325. Korea 232,115. Singapore 120,681. Thailand 100,459. Philippines 44,605. Malaysia 40,129. Indonesia 26,585. China 23,024.

Middle East: United Arab Emirates *(Arabu)* 9,895. Israel 4,887. Kuwait 1,256.

Europe (Western and Eastern): Netherlands 115,703. Germany 102,724. England 74,231. France 45,971 Sweden 40,170. Italy 20,283. Belgium 17,932. Austria 13,370. Spain 6,118. Denmark 4,090. Canary Islands (Spain) 2,000. Russia 1,715. Finland 1,310. Switzerland 450.

North America: United States: 2,297,893. Canada 242,240.

Latin America: Argentina 12,589. Brazil 12,338. Costa Rica 400.

Africa: South Africa 2,678.

Oceania: Australia 164,601. Guam 31,553. New Zealand 27,621. Mariana Islands 6,578 (of which the largest is Guam). Palau Islands 650. Note: This is the earliest document seen (July 2008) concerning soybean products (miso) in Palau; soybeans as such have not yet been reported.

Total exports. 4,531,300 kg. Total amount of miso made in Japan in 1998: 548,750,000 kg. Percent of miso made that is exported: 0.82%. Address: Japan.

2673. Ross, Alexander M.; Crowley, Terry. 1999. The college on the hill: A new history of the Ontario Agricultural College, 1874-1999. Toronto, Oxford, and New York: Dundurn Press. 224 p. Illust. Index. 22 x 28 cm. [150+* ref]

• ***Summary:*** This is an extensively revised and updated version of the 1974 edition. Most of the text has been completely rewritten. The contributions of C.A. Zavitz are well documented (see the Index). "Although a young Charles Zavitz was chiefly responsible for expanding experimental plots, Thomas Shaw took the credit. He also refused to promote Zavitz to head of the experimental department despite a recommendation by Farmers' Institute superintendent F.W. Hodson" (p. 53-54). This showed how politics was controlling matters at OAC. After an 1893 inquiry and scandal, Thomas Shaw was fired.

Young George Creelman became president of OAC in 1904, "full of a reforming zeal bred in the knowledge that the college had languished academically, though not materially," during the previous presidency of his father-in-law, James Mills (p. 74). Several OAC faculty members are worth examining more closely for what they reveal about developments. "Charles Zavitz represented the best in the college's research efforts. Picking up on Gregor Mendel's experiment in plant breeding. Zavitz brought genetics to Guelph through selective breeding techniques related

primarily to cereals. His singular innovation was to miniaturize experimental plots in a manner that allows the breeding program to expand. Zavitz reduced experimental plots to 1/100th of an acre whereas previously a quarter acre to one-fortieth of an acre had been used. Although the undertaking was controversial at the time, the results flowing from this radical departure were sufficient to bring the crop scientist a job offer from the agriculture department in Washington [DC], but he declined. Importing foreign varieties for his extensive program and working with flawless diligence, the quiet Quaker achieved notable successes in producing new crop cereal breeds, but not in tobacco, which had recently taken root in southwestern Ontario and which he refused to touch. With one plant selected from imported Mandscheuri barley as having the most desirable characteristics, Zavitz produced a variety called OAC 21 in 1906." Although this barley had not been selected by Zavitz as a malting type, it was adopted as the standard malting variety by Canada's brewing industry (p. 75).

Methodical and insightful, Zavitz was also generous in conveying results to the province's farmers through extension programs, but by the middle of the decade he was ready to retire. Worn out by his labours, Zavitz became an ornery old professor with a cranky disposition. Sporting a white beard and reportedly looking ten years older than his age, he complained bitterly to the college president about student dancing, smoking and the shabby appearance of the campus with weeds and rubbish everywhere. He left the college at the age of sixty-three in 1927, but only after he had made repeated requests for retirement with a pension. Programs that he had initiated continued to show results in the hands of his less illustrious successors... Zavitz's small plots became recognized across the continent and remained in use until displaced by reduced rod-row plots after World War Two."

During World War One, while OAC president George Creelman was away in New Zealand, advising the government on agricultural policies, Charles Zavitz was acting president. "A Quaker, Zavitz had previously pursued his pacifistic beliefs through the Canadian Peace and Arbitration Society. He opposed military training on campus and employed the argument favoured in Liberal federal government circles at the beginning of World War Two. Canada could do its part, Zavitz maintained, 'by furnishing in the best possible way the necessities of life for the people of Great Britain and other countries.' After allowing no pro-war meeting or parade to be held on campus, Zavitz submitted his resignation." James Duff (Ontario's Minister of Agriculture) did not accept it. In Oct. 1914, a furor erupted in the local media. "George Creelman returned early in 1915 to calm the storm with his usual amicable manner, but [in 1916] when the University of Toronto awarded Zavitz an honorary Doctor of Science degree for achievements in crop science, the citation acknowledged his steadfast Quakerism in referring to him as 'a man of peace'" (p. 87).

In the late 1800s the conflict between science and religion at Guelph arose in large part because of the evolutionary theories of Charles Darwin and Thomas Henry Huxley, both of England. "While unfolding nature's secrets through a scientific program, crop Scientist Charles Zavitz was still able to believe that 'true quality of character, conduct, and influence of all people depends on their spiritual co-operation with God who is the very source of intelligence...'" (p. 99).

Contains a good discussion of genetic engineering/ biotechnology and the development of soybeans and canola. In the 1980s there were roughly 20,000 test plots in any one year. "Whereas only three soybean varieties had been released by Guelph up to that time [1982], forty-four new ones were registered by 1998." In 1985 Wally Beversdorf's group succeeded in releasing the world's first triazine-resistant spring canola variety, OAC Triton, which allowed spraying of the crop with a well-known group of herbicides (p. 181). Starting in the mid-1970s: "Crop science displayed a dynamism not seen since the days of Charles Zavitz early in the century" (p. 183). The crop science soybean program developed a novel system capable of delivering large quantities of hybrid seed without the use of transgenes, restorers, herbicide screening, or strip planting. A U.S. patent was obtained in 1998 hybrid systems for Canola were transferred to the private sector for commercialization. The soybean variety OAC Bayfield, developed over 8 years by a team that included Beversdorf and Tanner, was especially successful. In 1998 this variety was planted on 20% of Ontario's soybean acreage (162,000 acres), according to the Canadian Seed Growers' Association. This was the largest acreage ever occupied by a single soybean variety in Ontario.

In 1990 Rob McLaughlin succeeded Freeman McEwen as dean of OAC. He was seen a quite responsive to corporate interests. A photo (p. 200) shows him with a bag of OAC Millennium soybeans and a seed industry representative. Address: 1. University Prof. Emeritus, 2. Prof. of History. Both: Univ. of Guelph, Ontario, Canada.

2674. Grainger, Bruce. 2000. Re: Leonard Sylvanus Klinck (1877-1969): Canadian soybean and plant breeder, and educator. Letter (fax) to William Shurtleff at Soyfoods Center, Jan. 27. 2 p. Handwritten, with signature on letterhead. [6 ref]

• ***Summary:*** Bruce also sent a file of valuable biographical information about Leonard Klinck. Address: Head, Public Services, Macdonald Campus Library, McGill Univ., Quebec, Canada. Phone: (514) 398-7960.

2675. **Product Name:** Senbei (Rice Crackers) [Soy, Original (Lightly Salted), and Sun Dried Tomato].
**Manufacturer's Name:** Masuya Naturally (Importer). Made in Japan.
**Manufacturer's Address:** 730-999 Canada Place, Vancouver, BC, V6C 3E1. Phone: (604) 844-1913.
**Date of Introduction:** 2000. January.
**Ingredients:** Incl. glutinous rice flour and soy sauce.
**How Stored:** Shelf stable.
**New Product–Documentation:** Card sent by Patricia Smith from Natural Products Expo, Anaheim. 2000. March 27. This postcard advertises Masuya's senbei. On the front is a color illustration of the Buddhist monk Kobo Daishi (St. Kobo) kneeling by a long rectangular hibachi *(naga-hibachi)* and baking rice senbei using the ancient Japanese method. The back notes that Masuya sells three varieties of senbei and gives the company's address, phone, and website. Talk with Brian R. Elliot at Masuya in Canada. 2000. March 31. This product was introduced in North America in Jan. 2000. It is made in Mie prefecture, Japan and packed in 4 oz foil bags for freshness. The company plans to switch from shoyu to tamari so that the product is free of wheat and gluten.

2676. Lewycky, Jerry. 2000. Starting a new miso company in Canada (Interview). *SoyaScan Notes.* Feb. 2. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Jerry (whose last name is pronounced luh-WIK-ee) learned how to make miso from Yasuo Yoshihara. He started making miso in April 1999 and now has about 20,000 lb "brewing" in vats, each of which contains about 7,000 lb of raw miso. He has two vats full of 2-year barley miso and one vat full of 2-year brown rice miso. These will be ready for sale in the fall of 2000. He would also like to make a short-term white miso. He has not yet decided the name of his company, but he is considering "Miso Tradition." Jerry also has another miso teacher–Don DeBona. He visited Don several times in North Carolina–after he was no longer employed by American Miso Co.–and Don visited Jerry once in Claremont, Canada; he has been very helpful. Don still lives in his house right beside the miso factory in Rutherfordton, and is now working as a forest ranger for the Forest Service in North Carolina, but he has expressed an interest in making miso again, perhaps with Jerry. Jerry has traveled to Japan several times when he was co-owner of Timbuktu Natural Foods. He sold the company for a good price to a guy who bought it hoping to make a lot of money; he ruined the company. Jerry plans to sell his miso in glass jars. He believes he can take over much of the Canadian miso market now owned by South River Miso Co., because their miso is very expensive in Canada. Address: R.R. #4-2090, Claremont, ON L1Y 1A1, Canada. Phone: 905-649-1988.

2677. Tanner, Jack W. 2000. Soybeans in Ontario, Canada, and Prof. C.A. Zavitz (Interview). *SoyaScan Notes.* Feb. 3 and 22. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Prof. Tanner is very interested in the history of the soybean in Canada. The soybean pioneer in Ontario and Canada was Prof. Zavitz of Ontario Agricultural College (O.A.C.). Zavitz was in the first "degree class" at O.A.C. receiving his degree in 1888 from the Univ, of Toronto. He was the first head of the Dep. of Field Husbandry in 1904–although he was the chief experimentalist for years before that. He was also very active in establishing alfalfa in Ontario province, and one variety of barley (O.A.C. 21), which he selected from a Manchurian introduction. O.A.C. turned out to be the best malting barley Canada ever had until about 20 years ago, and it was grown on 95% of the barley acreage in Ontario.

Prof. Zavitz was a Quaker and a very religious man. As a Quaker, he was actively opposed to war, drinking alcohol, and smoking tobacco. He once fired / sacked a worker for smoking in an experimental area. His anti-war work was famous. Zavitz was also meticulous in keeping records of his field work. Since he started growing soybeans in 1893, he probably published something about his work in the next annual report, or at least by 1895. In the early years of the Ontario Agricultural and Experimental Union (which started in 1886), Zavitz would send packets of seed to hundreds of farmers every year. The farmers would grow the varieties, take notes, send the notes to Zavitz, and he published the results in the Report of the Experimental Union–one copy of which was sent to each of the participating farmers. In the early 1900s, farmers would come to O.A.C. by train excursion and go through Zavitz's plots with him. In June 1904 some 40,000 farmers visited Zavitz' plots.

When Zavitz did selections, he would sometimes plant thousands of lines for testing and evaluation. Each was numbered consecutively. Thus, the O.A.C. 81 soybean just happened to be 81st entry.

Prof. Zavitz died in 1940. No thesis about his life and work has ever been written at O.A.C.

O.A.C. was established in 1874 by the Canadian Ministry of Agriculture; it was "a humungous political football from the day it started–just incredible." All faculty members worked for the Ministry. When students graduated from O.A.C., they received their degrees from the University of Toronto. In 1964 O.A.C. (together with the veterinary college and the Macdonald Institute of Home Economics) formed the nucleus of the new University of Guelph. A centennial history, titled *The College on the Hill,* by Alec Ross, was published in about 1974. Last year, when the college celebrated its 125th anniversary, two books were published. One was an update of the 100 year history of the college, by Alec Ross and Terry Crowley. The other was titled *125 Years of Achievements: OAC–A Proud Tradition,*

*An Exciting Future, 1874-1999* by Jack Tanner, Clare Renne, Douglas Morrison, and Freeman McEwen, about the 125 most important accomplishments of the college. In the latter book, soybeans are mentioned in five of the important accomplishments. Prof. Tanner spent a lot of time in the O.A.C. archives and library researching the book. There are only 3-4 references to soybeans in the book. The soybean is now the most important commercial farm crop in Ontario province, grown on about 2 million acres; it passed corn in terms of acreage several years ago.

Last year Prof. Tanner worked very hard to have the first posthumous honorary degree awarded to Prof. C.A. Zavitz, on the 125th anniversary.

For a description of soybean varieties registered in Canada, contact the Canadian Seed Growers' Association in Ottawa.

In the main office of Department of Plant Agriculture there is a personnel file on Prof. Zavitz, which contains about 100 sheets. Several volumes of Zavitz's diary of field work is also in the Dean's office. The archives of the University of Guelph (McLaughlin Archives) also has extensive information on Zavitz. Sue Bennett is archivist at the OAC archives, which are located at the other end of Guelph in a factory-type building ("the annex") and which are different from the University of Guelph archives. An oil painting of Prof. Zavitz hangs by the front door of the O.A.C. In the Department are quite a few portrait photos of him; Jack has a color photo, and has seen another in the O.A.C. Review–showing Zavitz and other members of the first degree class from O.A.C. Address: Retired Prof., Plant Agriculture Dep., Crop Science Bldg., Univ. of Guelph, Guelph, Ontario N1G 2W1, Canada.

2678. Jessop, Doug; Mullin, John. 2000. How their Canadian miso won a prize in the Japanese miso contest (Interview). *SoyaScan Notes.* Feb. 28. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Canada has been working for many years to develop food-grade soybeans that are especially well suited for making Japanese soyfoods, such as miso. This year Doug and John entered their miso in the Japanese national contest and won two Special Participation awards. Dough explains: They started by making miso using three Canadian soybean varieties: Harovinton (released in 1989), AC Onrei (released in 1997; "AC" stands for Agriculture Canada), and AC 756 (a double lipoxygenase null variety). They made miso from each of these three soybean varieties and sent it for evaluation to the Nagano Research Institute. NRI said that, of these three, the miso made from the AC Onrei variety was the best, so they concentrated on making miso from that soybean for competition. AC Onrei is a very large-seeded, long-season, white hilum, buff colored soybean, one of whose parents is Enrei–a large-seeded Japanese variety. Most of the miso they entered was red miso; some of it was rough (unground) and some was finished/fine (smooth/ground). They entered their miso in two different contests: The All-Japan content and the Nagano contest, and they won an award for each. This was surprising because AC Onrei was not bred as a miso-type soybean; it has a high protein content and was originally developed as a soymilk and tofu bean. For miso soybeans, the Japanese always look for high sucrose–over 7%; AC Onrei has 6.8%. They also look for total free sugars, of which AC Onrei contains about 10.5-11% (about average). Even though about half the sugars are probably bound up in pectins or cellulose and have no effect on the miso flavor, they still like to know the total sugar content.

Entering and winning this contest was a new step forward for the Canadian soybean folks. "It's really something special." Doug has been taking Japanese language lessons. The miso group of which John is the project leader is now starting to log in soybean variables on a database, which has fields for sucrose, total free sugars, color, etc. For miso soybeans (including red miso or long-term soybean miso), the Japanese prefer a yellow color to a whiter color–which the tofu and soymilk makers look for.

John explains that he is a food scientist, not a soybean breeder. We talked about 6 years ago when he was starting to work on miso, and he ordered a search on miso from the SoyaScan database. The breeders are the key to the process; at Harrow they breed mostly food-type or food-grade soybeans rather than commodity-type or oilseed-types–which are bred mostly at Ottawa and Guelph.

John's miso group at Harrow has developed a close working relationship with the Food Research Institute in Nagano; they now work directly with one another. About two years ago, Mr. Fujimori, a miso maker with whom they have developed strong ties over the years, was in Canada on one of his trips. John gave him (for the first time) some homemade miso that his group had produced. He sniffed it and looked at it and said "This isn't too bad." He took it back to Japan, where it was evaluated and the results were sent to John–with Mr. Fujimori's interpretation. The conclusion was: "It's okay but... don't give up your day job." John wrote back asking how his group could improve the miso. That was they key! Mr. Fujimori came to Harrow again with another person, gave John's group a lot of technical information, suggested that he use that information to make more miso–and to enter the miso in the annual Japanese miso contest! Mr. Fujimori provided the koji and John got a microbiologist involved. John's group now made miso from three different soybeans (see above) and the scientists and judges at the FRI in Japan "were quite surprised." They said "This isn't bad." They chose the best one. So John's group made larger batches and sent them to Japan in October 1999 for entry in the annual contest. In November John went to Japan to be present at the contest–although nobody can observe the judging. He learned that

this was the first miso ever entered by foreigners in the Japanese contest. He also learned that the Canadian miso was not being judged with or against the Japanese miso. They were judging it separately in a special category–of which it was the only entry. Both awards for an "E" for effort and for reaching a high standard. "Miso is kind of a religion in Japan and it for an upstart like us to come in might not go down too well. But we found it interesting that they used our presence there for publicity–in a big way." John also discovered that the koji in all miso entries *must* be made from Japanese rice–even though a lot of Thai rice is used in making commercial miso in Japan. "Our real mission there was to raise the profile of Canadian-grown soybeans and to increase exports of Canadian soybeans. We want to breed soybeans that are very well suited for making miso in Japan. We are not interested in making miso to sell to Japan. However there is a good possibility of developing a domestic market for miso in Canada."

John is also deeply involved in trying to understand "stone seeds" or hard-seeded soybeans that do not absorb water well. Part of the problem seems to be related to weather/environmental conditions during the growing season. John hopes to try to understand the problem at the genetic level. "We now have a very heavy experimental stone-seed line."

John enjoys miso at home and he has served miso soup at the research station on several occasions. Last week he had it served at the Rotary Club. In each case, everybody liked it. "Fermented foods add such a variety of textures and flavors that people enjoy." Address: 1. Food Processing Technologist; 2. Food Scientist: Both: Agriculture and Agri-Food Canada, Greenhouse and Processing Crops Research Centre (GPCRC), Highway 18 East, Harrow, ON N0R 1G0, Canada. Phone: 519-738-2251.

2679. Jenkins, David J.A.; Kendall, Cyril W.C.; Vuksan, V. 2000. Viscous fibers, health claims, and strategies to reduce cardiovascular disease risk. *American J. of Clinical Nutrition* 71(2):401-02. Feb. [14 ref]
• ***Summary:*** Regular use of the viscous soluble fiber psyllium leads to an average 7% reduction in LDL cholesterol. Thus, it should be added to the stepwise approach to the dietary therapy of hypercholesterolemia, along with the replacement of meat and dairy products with soy protein and the addition of plant sterols to the diet. Address: 1. Clinical Nutrition and Risk Factor Modification Center, St. Michael's Hospital, 61 Queen Street East., Toronto, Ontario MC5 2T2, Canada.

2680. *Ontario Soybean Growers Newsletter.*2000. New name, new look. Feb. p. 1.
• ***Summary:*** "On December 1, 1999, the Board name was officially changed to Ontario Soybean Growers. A new logo was also adopted (see above). One thing that hasn't changed is our mandate to 'develop and promote a sound industry business environment that will allow Ontario soybean producers the opportunity for viable and profitable ongoing returns.'"

Note 1. The title of this excellent newsletter has also changed. Note 2. The Board was formerly named "Ontario Soybean Growers' Marketing Board." Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

2681. *Ontario Soybean Growers Newsletter.*2000. Japanese miso awards presented. Feb. p. 3.
• ***Summary:*** "Agriculture and Agri-Food Canada scientists at the Greenhouse and Processing Crops Research Centre (GPCRC) in Harrow recently received two Special Participation Awards for the first foreign entries in miso competitions in Nagano and Tokyo, Japan... Japan requires approximately 160,000 tonnes of soybeans annually to produce miso, some of which comes from Canada.

"The miso production test program at the federal research centre at Harrow began in March 1998 to support the centre's soybean breeding program and to evaluate the suitability of Canadian soybeans for making miso."

"Dr. John Mullin, the miso project leader, said it was a great honour to receive the awards, which recognize the effort and progress that the Canadian researchers have made in making miso. Dr. Mullin traveled to Japan to submit the miso for competition and was on hand to accept the awards.

"The soybean breeding program at the GPCRC is known throughout the world for its research on food-grade soybeans. Harovinton was the first food-grade soybean variety developed in Canada for the Japanese tofu industry, and helped pave the way in establishing Canadian food-grade soybeans as a premium quality product in Asia."

A photo shows Dr. Jonn Mullin and Food Processing Technologist Doug Jessop, each holding a framed plaque (written in Japanese). On a table in front of them are samples of their award-winning miso. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2682. *Ontario Soybean Growers Newsletter.*2000. Soybean planting decision for 2000–GE or not GE? Feb. p. 3.
• ***Summary:*** In the face of much uncertainty, Ontario farmers will soon have to decide whether to plant genetically enhanced (GE) or non-genetically enhanced soybeans next year. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2683. Hays, Constance L. 2000. Selling natural foods to the crowd. *New York Times.* April 9. p. BU2.
• ***Summary:*** The story and history of Irwin D. Simon and the Hain Food Group. He spent his formative years in Glace Bay, Nova Scotia, Canada, in a family that worked hard and wasn't affluent. In 1985, several years out of college, he went to work for Haagen-Dazs, the ice cream brand. In

1990 he joined Slim-Fast, the diet-shake company as a brand manager. In 1992 he left to be his own boss, and bought the Kineret line of Kosher foods, which he took public in 1993. Shortly thereafter he acquired Hain, a line of vegetable oils, condiments, and other products.

In Dec. 1999, the Kellogg Co., bothered by flat cereal sales, purchased Worthington Foods for about $80 million.

2684. *Ontario Soybean Growers Newsletter.*2000. Canadian Soybean Export Association executive [meeting]. April. p. 2.
• ***Summary:*** The Canadian Soybean Export Association (CSEA) held their 5th Annual meeting recently in London [Ontario]. CSEA is a voluntary association of members of the Canadian soybean industry, working as a team to promote exports of Canadian soybeans and soya products into world markets. The members include producers, exporters, dealers, researchers, and federal and provincial government officials.

At their Annual meeting, CSEA members elected a new executive to serve them in the coming year: Paul Hazzard (St. Clair AgriServices Ltd.)–Chairman. Michael Loh (Southwest Soya Int.)–Vice Chairman. Tom Lassaline (OSG)–Executive Member. Kim Cooper–Secretary / Treasurer. A photo shows these four men standing. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2685. *Ontario Soybean Growers Newsletter.*2000. Soyfoods corner. April. p. 6.
• ***Summary:*** Contains a quick and easy recipe for Tofu tacos. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2686. Potvin, Yves; Mellina, Vesanto. 2000. The good cook book. 2nd ed. British Columbia, Canada: Yves Veggie Cuisine. vi + 116 p. Illust. No index. 19 x 19 cm.
• ***Summary:*** A handsome book promoting the company's products and containing many color photos. "This book is lovingly dedicated to my wife, Sylvia, and my two children, Ariane and Marcus." Contents: Introduction. Breakfast. Appetizers and snacks. Soups & salads. Sandwiches, hot dogs & burgers. Entrées. Beverages. Glossary. Contains many color photos of recipes, and one of Yves Potvin. In the back are tear-out coupons.

Note: The first edition, almost identical to this one, was published in Feb. 2000. Address: 1. Founder & President, Yves Veggie Cuisine, 1638 Derwent Way, Delta, BC V3M 6R9 Canada; 2. Registered Dietitian, British Columbia. Phone: 604-525-1345.

2687. Demos, Steve. 2000. White Wave reflects on growth and Dean Foods investment: Q&A with Steve Demos, CEO of White Wave. *Nutrition Business Journal (San Diego, California)* 5(6):12-13. June.
• ***Summary:*** Products with the White Wave and Silk brand names are now sold in virtually all natural foods stores and over 17,000 mainstream supermarkets in the USA and Canada.

The past 12 months have been the most dynamic period of change and growth in the history of White Wave. In 1999 the Silk beverage line was in less than 1,000 supermarkets, but by May 2000 that number had increased to over 17,500. This increase was not a result of anything Dean Foods (a $4+ billion dairy and specialty foods manufacturer and marketer) did for White Wave. White Wave already had strong momentum before the relationship with Dean Foods began. In 1998 White Wave's distribution was 85% natural foods and 15% supermarkets/grocery stores. In 1999 it was 55% natural and 45% supers. This year the company expects a shift to about 65% supers and 35% natural. For the fiscal year ending 31 March 2000, White Wave's sales were up more than 100% over the previous year, and for the month of March 2000, they were up 400% over the same month one year ago.

White Wave's greatest short-term challenge is to attract, train, and retain personnel who can meet the challenges of the company's growth and, even more important, maintain the company's culture and identity.

Silk's success in supermarkets has attracted several very large corporate competitors. Soymilk products now sold in the refrigerated beverage case include those from Suiza Foods, Hain Foods (Westsoy brand), Imagine Foods, Vitasoy, Best Foods Co., and Pepsico/Galaxy Foods.

White Wave's market share, (according to March data from Spins and April data from IRI) is 20% of the non-dairy beverage sales in natural foods and 78% of refrigerated non-dairy sales in mainstream supermarkets.

FDA approval of a health claim for soy protein has been one factor leading to dramatic growth for White Wave. During the past fiscal year, the company has operated on its previously developed "out-of-sight" growth plan (for very fast growth), which has led to 74% growth in existing markets and 108% growth in sales increase with less than 0.5% out of stock and almost no quality problems.

Concerning industry consolidation, Demos is glad to see natural foods becoming more widely available in America through new channels of distribution. The problem is that large, multinational companies seldom, if ever, are involved in innovative product development of natural or organic foods. When the entrepreneurial element leaves, the passion to innovate is often lost. No one at White Wave is cashed out or retired, and the passion remains.

Looking back: During the 1970s and 1980s, survival was the key to success for soyfoods companies. During the 1989s it was R&D leading to product innovation and better flavor. During the next decade it will be serious financial backing, dependable and far-reaching distribution, establishing consumer brand loyalty, having consistent and

high quality goods and services, and differentiating your company and products from competitors.

2688. *Ontario Soybean Growers Newsletter.*2000. Soyfoods opportunities conference. July. p. 3.
• ***Summary:*** "On April 13th, over 130 delegates attended the 'Soyfoods Opportunities Conference' held in Guelph [Ontario]. The purpose of the conference was to bring together industry stakeholders to explore" new opportunities. "Soyfoods are becoming one of the fastest growing food groups in North America." "Peter Golbitz, one of the leading authorities on the world soyfood market, spoke on current and emerging trends in soyfoods." He noted that only 10% of the world's soybeans are currently being used as soyfoods, and of that amount, 90% are in Asia. Sales of soyfoods in the USA this year is expected to top $2.6 billion–led by growth in soymilk and meat alternatives.

Yves Potvin described his very successful work with soyfoods. "After the conference, many of the delegates gathered to discuss the feasibility of creating a Canadian Soyfoods Association. 40 people from across Canada voiced unanimous support..." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2689. *Ontario Soybean Growers Newsletter.*2000. 2000 Project Soy winners. July. p. 8.
• ***Summary:*** "Judging for the Soybean Opportunities for Youth Contest, better known as Project SOY, took place last month. The annual contest requires students to develop new uses and markets for soybeans. There are two categories, one for undergraduate and graduate students, and one for diploma students." First place and $2,500 in the Undergraduate/graduate category went to three young ladies from the University of Guelph; they created Whole Hearted Bagels, which are loaded with soy protein. Second prize in this category went to "Soy Images," a line of lipstick and lip balms made from 100% soybean oil. There was a tie for third place with the developers of soynut butter cookies and tofu-based crackers.

In the diploma category, first place went to two ladies from Kemptvile College who created Equi-Soy, an equine [horse] shampoo, made with soy oil and enhanced with tea tree and lavender oils. A photo shows the three inventors of the soy-enriched bagels, flanked by Dr. Rob McLaughlin (Dean of Ontario Agricultural College), and Peter Hannam, President of First Line Seeds (a contest sponsor). Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2690. *Ontario Soybean Growers Newsletter.*2000. Pepsi to market soymilk. July. p. 8.
• ***Summary:*** "Coming soon to U.S. theatres: A cold soymilk-and-fruit drink to wash down that hot buttered popcorn. The drink is a product of PepsiCo Inc's Tropicana brand, one of several big food and beverage companies trying to get in on the growing market for soy. Kellogg, Kraft and H.J. Heinz have also recently acquired soyfood companies.

"Known as 'Tropicana Smoothie made with veggie milk', this icy drink is a joint venture with Galaxy Foods in Florida. In addition to some theatres in Florida, the drink is going to be tested in selected restaurants and Kroger supermarkets.

"Galaxy Foods hopes to soon market the Tropicana Smoothie, as well as other soy products, in Canada." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2691. Shurtleff, William; Aoyagi, Akiko. comps. 2000. Miso and soybean chiang–Bibliography and sourcebook, first century B.C. to 2000: Detailed information on 2,619 published documents (extensively annotated bibliography), 343 commercial miso products, 304 original interviews (many full text) and overviews, 372 unpublished archival documents. Lafayette, California: Soyfoods Center. 1026 p. Subject/geographical index. Author/company index. Extensively annotated. Printed July 10. 28 cm. [3198 ref]
• ***Summary:*** Miso, or "fermented soybean paste," is one of East Asia's most important soyfoods. Miso is an all-purpose high-protein seasoning, which has no counterpart among Western food or seasonings. Made from soybeans, rice or barley, and salt, its smooth or chunky texture resembles that of soft peanut butter. It comes in a wide range of warm, earthy colors ranging from light yellows to rusty reds, rich chocolate browns, or loamy blacks. Each miso has its own distinctive flavor and aroma, which for the darker, more traditional varieties is savory, and sometimes almost meaty, while for the lighter-colored types is subtly sweet and delicately refreshing. Miso's range of flavors and colors, textures and aromas, is at least as varied as that of the world's fine wines or cheeses.

Today miso is made by a small number of companies in the United States, Canada, Europe, and (as miso or miso products) is widely available at supermarkets, natural- and health food stores, and Asian stores.

This book contains the first detailed history of each of America's pioneer miso manufacturers.

This is the most comprehensive book ever published about miso and/or soybean chiang. It has been compiled one record at a time, over a period of 25 years, in an attempt to document the history of this subject. Its scope includes all known information about these two seasonings, worldwide, from the first century B.C. to the present. It is also the single most current and useful source of information on this subject available today, since 86% of all references (and most of the current ones) contain a summary/abstract averaging 229 words in length.

This is one of more than 40 bibliographies on soybeans and soyfoods being compiled by William Shurtleff and

Akiko Aoyagi, and published by the Soyfoods Center. It is based on historical principles, listing all known documents and commercial products in chronological order. It features: 63 different document types, both published and unpublished, every known publication on the subject in every language–including 2,368 in English, 618 in Japanese, 120 in German, 105 in French, etc. Extensive translations of many of the Japanese and European works. 304 original Soyfood Center interviews and overviews never before published. Thus, it is a powerful tool for understanding the development of this subject from its earliest beginnings to the present, worldwide.

The bibliographic references in this book include 2,169 published documents and 372 unpublished archival documents. Each contains (in addition to the typical author, date, title, volume and pages information) the author's address, number of references cited, original title of all non-English language publications together with an English translation of the title, month and issue of publication, and the first author's first name (if given).

This book also includes details on 343 commercial miso products, including the product name, date of introduction, manufacturer's name, address and phone number, and (in many cases) ingredients, weight, packaging and price, storage requirements, nutritional composition, and a description of the label. Sources of additional information on each product (such as advertisements, articles, patents, etc.) are also given.

Details on how to make best use of this book, a complete subject/geographical index, an author/company index, a language index, and a bibliometric analysis of the composition of the book (by decade, document type, language, leading periodicals or patents, leading countries, states, and related subjects, plus a histogram by year) are also included. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Phone: 925-283-2991.

2692. Snyder, Kristie. 2000. The soy of living: A Charlottesville company brings healthy, tasty products to a growing number of consumers. *Health Beat (Charlottesville, Virginia).* June/July. p. 10-11.
• ***Summary:*** Jon Kessler and his partner, Janus Raphaelidis started Sunergia Soyfoods in early 1998 in Charlottesville. At the time, both lived at the Twin Oaks Community in Louisa County, Virginia, where they were involved in tofu manufacturing. Their tofu is made by a company in Quebec, Canada.

2693. Wolf, Walter. 2000. Soy-related documents–Business records (Archival collection). Peoria, Illinois.
• ***Summary:*** In July 2000 Dr. Walter Wolf, as he was preparing to retire from the Northern Center for Agricultural Utilization Research in Peoria, Illinois, sent to Soyfoods Center many file folders of soy-related documents that he had collected between about 1968 and the present. Most are in the field of soy protein, and none are confidential / proprietary. Each one is neatly dated, and the documents are in reverse chronological order in each manila file folder.

Dr. Wolf earned his PhD degree at the University of Minnesota, where he studied soy proteins. He began work at NCAUR in 1956; at that time it was named the Northern Regional Research Center. He worked as a chemist in the Meal Products Research Group. He did mostly pure research, rather than applied. At the time there was little interest in food uses of soy protein. One of his main contributions was collecting and publishing statistics on the annual production and price of soy flour, soy protein isolates, soy protein concentrates, and textured soy protein products.

The following files (listed alphabetically) were received by Soyfoods Center. Unless otherwise stated, only one file on each company or subject was received. A thin file contains less than about 20 sheets of paper; a thick one contains more than 20 sheets: ADM (Archer Daniels Midland Co.; 2 thick files 1970-2000). Anderson Clayton (thin, 1971-81). Cargill (thin, 1970-2000). Central Soya (4 thick files, 1959-1999). Dawson Mills (thick, 1974-1983). Edible Soy Products, Inc. (Hudson, Iowa; Maker of Pronuts; thin, 1971-78). EMI Corp. (Des Plaines, Illinois, thin, 1971-74). Erie Casein Co. (thin, 1966-73). Fuji Oil Co. Ltd. and Fuji Purina Protein Ltd. (of Japan, thick, 1972-1993). Farmland Industries and Far-Mar-Co (thin, 1970-1993). Food Ingredients–Dale Johnson (thick, 1964-1998). Garrison Products (extrusion, thin, 1977-78). General Foods (thin, 1974-1981). General Mills (thick, 1965-1976). Gerber Products (thin, 1969). Grain Processing Corp. (1968-1976). Griffith Laboratories (thick, 1968-1986). Gunther Products (purchased by A.E. Staley, thick, 1963-1975). Honeymead Products (Mankato, Minnesota, thin, 1978-1986). Industrial Grain Products (Montreal, Canada, thin, 1973-1975). Kikkoman (thick, 1972-1997). Kraft, Inc. (1965-1984). Lauhoff Grain (1 thin, 1973-86). Loma Linda Foods (thin, 1969-1986). Miles Laboratories (thick, 1970-83). Nabisco (1974-81). Meals for Millions Foundation (1 thin file, 1976). Protein Advisory Group of the United Nations, PAG Guidelines (thin, 1969-1978). Quaker Oats (thin, 1970-97). Joe Rakosky, consultant (1979-83). Ralston Purina Co. (4 files, very thick, 1962-1999). Soy protein products (2 files, thick, 1970-1986). Soy protein production statistics and estimates (two thick files, 1970-1996). Staley (A.E., 1 thick, 1969-1986). Swift & Co. (thin, 1961-1971). Takeda Chemical Industries (thin, 1970-1984). Textured soy proteins (1 thin, 1969-71). Tofu equipment (thin, 1970s). Tokuji Watanabe tofu studies at Peoria, Illinois (thick, 1960-61). United Nations Industrial Development Organization (UNIDO, thick, proceedings of Nov. 1969 meeting at Peoria, Illinois), Unilever (thin, 1974-79). Wenger

Manufacturing Co. (thin, 1975-76). Worthington Foods (thick, 1965-1998). Address: NCAUR, Peoria, Illinois.

2694. Rice, Judy. 2000. Wyoming will be home of new soy milk facility. *Beverage Online.* Aug. 10.
• ***Summary:*** A new soymilk production company named Star Valley Natural Foods has been established. Principals in the joint venture include Jeremy N. Kendall, chairman and CEO of Stake Technology Ltd. Allan Routh, president of SunRich, Inc. And Dennis Anderson, chairman and CEO of Northern Food & Dairy, Inc., which currently produces soy milk at its facilities in Alexandria, Minnesota.

The partners have purchased a 20,000 square foot plant and equipment to make soy milk in Afton, Wyoming; it is scheduled to begin operation in September and will supply the West Coast market.

Located in the Star Valley in the Teton Range of the Rocky Mountains, the plant will use the crystal-clear water from the world's largest cold-water geyser in making its soy milk.

Northern Food & Dairy and SunRich recently formed a joint venture named Nordic Aseptic to purchase a soy milk packaging plant. Stake announced its intention to acquire Northern Food & Dairy.

Note: For more information phone Walt Humbert of Star Valley Natural Foods at 307-886-5212. As of 20 Nov. 2000 the plant had not yet begun operation.

As of 21 Nov. 2002 the phone is 307-885-3060.

2695. *Ontario Soybean Growers Newsletter.*2000. New Canadian soyfoods organization formed. Aug. p. 8.
• ***Summary:*** Soyfoods Canada is the name of the new group, chosen at a meeting in July. They prepared a mission statement and four objectives, which are given in this article. The idea for the new organization dedicated to the promotion of soyfoods arose after the April Soyfoods Conference in Guelph.

Note 1. See separate interview of Aug. 2000 with Kim Cooper of Ontario Soybean Growers.

Note 2. This is the earliest document seen (Jan. 2010) that mentions Soyfoods Canada, the first real trade association for soyfoods in Canada. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2696. Cooper, Kim. 2000. Soyfoods Canada, the new Canadian soyfoods association (Interview). *SoyaScan Notes.* Aug. 21. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Current members of the new organization are the Canadian Ministry of Agriculture, Ontario Soybean Growers, Natures Milling (Ontario), St. Clair Agri Services Ltd. (a soybean exporter in Ontario), University of Guelph, SoyaWorld Inc. (Vancouver, BC), ADM (Maureen Callahan, from USA), and Galaxy Foods (Ontario).

The group is presently headquartered at the Ontario Soybean Growers' offices in Chatham. Janet Nauta (in charge of communications at OSG), who is serving as executive director, is working on different brochures and cookbooks. The main goal is to raise awareness of soyfoods in Canada. The ultimate question people ask is "What do I do with this stuff?"

The group has already had three meetings with a fourth scheduled for October 25th in Toronto, Ontario.

Note: Because of Canada's archaic food laws, Galaxy Foods can't sell its cheese alternatives in Ontario. The government is considering rescinding this law. One of the focuses is on government relations, and standardizing laws that relate to soyfoods within the various provinces. Address: Marketing Specialist, OSGMB, Chatham, Ontario, Canada N7M 5L8. Phone: (519) 352-7730.

2697. Cooper, Kim. 2000. Growing identity preserved (IP) soybeans in Canada (Interview). *SoyaScan Notes.* Aug. 21. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Canada has been "IPing" (growing identity preserved soybeans) for about 15 years (i.e., since about 1985). The pioneers in growing IP soybeans were Paul King (age 50-55) and his father (who founded King Grain, and who is now in his 90s) and W.G. Thompson & Sons Limited (Blenheim, Ontario). Kim worked for King Grain for about 9 years. During his travels, Paul saw the need for consistent soybeans. He realized there was no way that Canada could compete with the USA for bulk shipments, so he proposed that Canada start to develop niche markets. He got very interested in soyfoods, because he believed there was a real opportunity for Canada to supply tofu makers with soybeans of consistently high quality year after year. Today Canada has the largest and most sophisticated IP system for soybeans of any country in the world.

When genetically engineered soybeans started to be sold, the Ontario Soybean Growers (OSG) got chastised by the American Soybean Association for growing non-GMO soybeans and for not helping the advancement of GMO soybeans. When the ASA suggested that Canada stop this, they responded that they were simply trying to fill a need in the market.

When customers started asking for non-GMO soybeans, they simply became another of Canada's IP products; the infrastructure was in place. OSG is basically selling a process, which they show to their customers–from seed to grower to elevator. The customers are quite satisfied that they will get the soybeans they want, whether it is 0.1% non-GMO or 1% non-GMO or whatever. For customers in Japan and the UK, non-GMO is very important; for those in Hong Kong, only about 50% want non-GMO. Ontario's IP production and exports have been increasing. This growth is hard to measure because the acreage is grown by individual companies. Kim has been doing some informal surveys,

which show that 30-35% of the larger farmers are growing IP soybeans, which are also a value-added crop. Throughout Ontario province, Kim would estimate that IP acreage accounts for about 20-25% of total soybean acreage, and less than 5% of America's total soybean acreage. So Canada is way ahead of the USA. Address: Marketing Specialist, OSGMB, Chatham, Ontario, Canada N7M 5L8. Phone: (519) 352-7730.

2698. Skiff, James. 2000. Seminars on identity preserved (IP) soybeans and non-GE soybeans organized by the American Soybean Association in Tokyo, Japan (Interview). *SoyaScan Notes.* Aug. 25. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** A Japanese law requiring selective labeling of genetically engineered (GE) soybean ingredients was passed in Oct. 1999 but does not take effect until 1 April 2001. Jim Echle, head of the ASA office in Tokyo, is extremely receptive to the needs of his Japanese customers, such as tofu makers.

The first conference on this subject was held in April 1999 in Tokyo; it was Jim Echle's idea. In about Jan. 1999 Echle visited Jim Skiff's non-GE soybean facility in Mattoon, Illinois. He told Skiff that he was thinking about having a seminar on Identity Preserved and non-GE soybeans in Tokyo and asked Skiff if he would be willing to participate; Skiff said he would like to. He did not yet have a date or place, but he had the idea before he visited with Skiff, because he had been approached in Japan by trade associations and manufacturers who were interested in obtaining non-GE soybeans. Skiff then suggested that Echle talk with Dr. Dennis Thompson of the Illinois Crop Improvement Association, who Jim relied on to test for and verify non-GE soybeans. Skiff took Echle to meet Thompson. Echle subsequently scheduled Thompson to be the keynote speaker at the seminar in Tokyo. It was held in April 1999 in the afternoon in a university auditorium near the ASA offices. Several Japanese also spoke. An interpreter was present. The ASA went out of its way to make the subject of the seminar Identity Preserved (IP) soybeans and seed certification rather than non-GE soybeans, since ASA has pushed so hard to try to make GE soybeans acceptable. In fact, Echle told Skiff not to mention non-GE soybeans and not to have any signs that mentioned them. About 150-200 people attended the seminar, which lasted approximately 4 hours.

After the seminar, the attendees went to a larger meeting room down one story in the same building where there was a two-hour informal expo and social hour with snacks. About 7-8 American companies, such as Jim's, had tables or booths. Most were selling specific IP soybean varieties. Only Skiff was focused on non-GE soybeans. Peter Shortridge from Northland Organic had a both next to Skiff's. Sandra, the USDA Officer in Tokyo, gave a little introductory talk, followed by the president of the Japanese Tofu Association. Because of his position with the ASA, Echle had to downplay non-GE soybeans but he also knew genetic engineering was a big issue in Japan. Skiff feels that he has developed a good relationship with Jim Echle.

The second such seminar was held in early June of this year (2000) in Tokyo. Dan Burke of Pacific Grain and Soy was the keynote speaker. Jim was unable to attend because he had to be at a show in Europe; he is not aware of a third seminar. Jim thinks that the Tokyo office of ASA has been the most responsive of all ASA offices worldwide to the needs of its customers for non-GE soybeans. In Europe, ASA has lost many customers. The last ASA director in ASA's Brussels office lasted less than a year.

ASA has done a great disservice to soybean growers by presenting a one-sided and slanted view, and by not keeping them informed of anti-GE sentiments and legislation worldwide. With better information, more American farmers would have started growing IP or non-GE soybeans–and probably profited thereby. The Ontario Soybean Growers in Canada have done a much better job of following a two-track policy. ASA still argues that there are only a few nuts like Greenpeace who oppose GE soybeans for no good reason, and that all rational people believe genetic engineering is a boon to soybean farmers and the inevitable wave of the future. But how about the Japanese and their law requiring labeling of GE ingredients? ASA should have followed a two-track, customer oriented policy. You want non-GE soybeans? Buy 'em from us. You don't care if the soybeans are genetically engineered? Buy 'em from us. Address: US Soy, 2808 Thomason Dr., Mattoon, Illinois 61938. Phone: 217-235-1020.

2699. *Ontario Soybean Growers Newsletter.*2000. WTO and the oilseeds complex–The case for zero-for-zero binding. Aug. p. 9.

• ***Summary:*** "The Canadian oilseed industry, including the Ontario Soybean Growers, is promoting the 'Zero for Zero' trade initiative at the World Trade Organization. The 'Zero for Zero' proposal calls for the elimination of all barriers to market access and all export subsidies."

"Together Asia and the EU account for 70% of the almost 50 million tonnes in oilseed imports." The EU imposes no tariffs on imported seed (and meal), but it does subsidise crops needed to supply its protein deficient feed sector. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2700. *SoyaScan Notes.*2000. Status of the soybean in the USA and worldwide as of Sept. 2000: A few basic facts and statistics (Overview). Sept. 6. Compiled by William Shurtleff of Soyfoods Center.

• ***Summary:*** The soybean is by far the world's most important oilseed or legume: World production in 1998 in

million metric tons was: Soybeans 134.06. Cottonseed 33.52. Rapeseed 31.33. Peanut 26.37. Sunflowerseed 23.50. Total of the top 5 oilseeds: 249.14, with soybeans accounting for more than half of the total (54.0%).

The United States is by far the world's largest producer of soybeans, producing almost as much as all other countries combined! Leading world soybean producing countries in 1998-199 in million metric tons were: United States 75.028 (and 28.6 million acres). Brazil 31.000. Argentina 18.300. China 13.800. India 6.000. Paraguay 3.100. Canada 2.737.

Top four soybean producing states (million bushels) in the USA in 1998: Iowa 501. Illinois 468. Michigan 285. Indiana 235.

Value of the U.S. soybean crop in 1998: $14.6 billion. Of the Indiana soybean crop: $1.25 billion.

How are U.S. soybeans utilized? About 35.6% of the crop is exported as whole soybeans, 60% is crushed to make soy oil (by far the most widely used vegetable oil in America today) and soybean meal (which is fed to livestock, poultry, and aquaculture animals), about 3% is transformed from whole soybeans into various soyfoods such as tofu, soymilk, miso, etc., and the rest is used as seed to plant next year's crop. Of the crushed soybeans, about 9% goes into industrial uses (non-food, non-feed) such as soy ink, soy diesel, etc.

How is soybean oil utilized in the USA? 96.2% is used for food and 3.8% is used for industrial (nonfood) uses. Of the total food uses: Cooking and salad oils 48.7%. Shortening 37.3%. Margarine 12.9%. Other 0.5%. Of the total industrial uses: Fatty acids, soap and feed 56.94%. Resins and plastics 18.14%. Inks 17.03%. Paints and varnishes 6.31%, Biodiesel 1.42%.

A good source of current soybean statistics is the ASA (American Soybean Association) website: www.unitedsoybean. org/soystats2000.

2701. Thompson, Wes. 2000. Sycamore Creek built a new plant for oil roasting soynuts in Michigan (Interview). *SoyaScan Notes.* Sept. 11. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** W.G. Thompson & Sons owns Sycamore Creek, a pioneer manufacturer of oil-roasted soynuts in Michigan. To keep up with steadily growing demand, the company moved into a much larger building, bought a much larger roaster, and began production at the new site in about Feb. of this year. This tripled the company's capacity–and they have room to double it again by buying another roaster.

The new plant represented a large investment, and during the last year several large competitors have entered the business with large investments of their own, so margins are small and it is taking a longer time than initially projected to recover their investment.

Note: According to article on soybeans in *Better Farming* magazine, by Ken Bennett and Don Stoneman, it was the Hyland Seed division of W.G. Thompson and Sons Ltd. that purchased Sycamore Creek, which processes soybeans grown in Ontario for shipment all over North America. Address: President, W.G. Thompson & Sons, Limited, 122 George St., Box 250, Blenheim, ONT Canada N0P 1A0. Phone: 519-676-5411.

2702. Williamson, Mel. 2000. Early history of Soy Protein Powders and Bars in America Co. (1950-1970) (Interview). *SoyaScan Notes.* Sept. 20. Sept. 22. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** The pioneer in these two categories was Bob Hoffman, who was associated with the York Barbell Co. in York, Pennsylvania and was the U.S. Olympic weight lifting coach for many years. He was a big guy–around 6 feet 5 inches tall, and weighing 250-260 lb. A very aggressive man, and excellent weight lifter, but never a body builder. He lifted 285 lb over his head with one arm–probably in an exhibition. In about 1936 he started publishing a magazine titled *Strength and Health*–which Mel began reading in the 1950s. Hoffman surrounded himself with men who later became hall-of-fame weight lifters and strongmen.

In 1951 he introduced the Hoffman's Hi-Proteen, a powder that contained 42% protein (mostly in the form of soy flour), came in a 4-lb can, and looked like a Wheaties box. One stirred it with milk and it tasted "God-awful," and the aftermath smelled up the gyms.

In 1953 or 1954 Hoffman introduced his first bar, named Hoffman's Hi-Proteen Fudge. It was the first protein bar (or nutrition bar) that Mel had ever seen–at the 1954 Mr. America contest, in which Mel was competing. Hoffman told Mel that it was made with equal parts by volume of powdered [nonfat] milk, high protein powder [soy flour], peanut butter, and honey. It was uncoated and sold via mail order. Mel went home and made some of his own using Hoffman's formula.

As Hoffman was getting established, Joe Weider entered the field in about the early 1940s. Joe and his brother Ben came from Montreal, Quebec, Canada. The Weider's launched a competing magazine titled *Your Physique.* A big "war" began between Hoffman and Wieder. They apparently disliked each other, and they challenged one another to fistfights in their respective magazines–which sold magazines. Hoffman's operation was big, stable, and profitable. Weider often ran into financial difficulties. But Weider had more flare than Hoffman. Weider's first food product was Crash Weight #7–a weight-gain powder that contained mostly sugar and flavor–no soy. The consumer mixed an 8-oz can of the product with a quart of milk, refrigerated it, then drank before the day was over; that gave you 1,800 additional [empty] calories. He sold it with lots of before and after photos. The young men who

consumed it wanted to gain weight, which they would turn into muscle in order to be stronger or to play football, etc.

In the late 1950s or early 1960s the Costa Candy Co. (in New Jersey or Pennsylvania) started making Hoffman's bars. They had enrobers and were able to make different flavors of bars. The quality improved quite a bit.

Another early protein nutrition bar was introduced in the late 1950s and made by in Los Angeles named the Frank Molina Co., which was later sold to Nature's Nectar, then after that to Weider.

Another early nutrition bar was introduced in the early 1960s by Gypsy Books who came from the Fairfield area and later moved south to Los Angeles. It probably contained no soy and was probably made by the Frank Molina Co. in Los Angeles. Address: Owner and Founder, MLO Products Co., Fairfield, California 94533. Phone: 1-888-436-4769.

2703. Rice, Judy. 2000. Making a stake in soymilk. *Beverage Online.* Sept. 21.
• ***Summary:*** Stake Technology Ltd. (Norval, Ontario, Canada) has acquired 100% of the common shares of Northern Food & Dairy Inc. (Alexandria, Minnesota). On 18 Aug. 2000 the shareholders of Stake Technology Ltd. overwhelmingly approved the transaction. Northern produces 65% of the soymilk sold in the USA. The U.S. soy milk market has grown by more than 30% a year in recent years to exceed US$300 million in sales in 1999.

2704. *Nutrition Business Journal (San Diego, California).*2000. GeniSoy markets to an expanding demographic: Soy manufacturer introduces new products, expands distribution and secures non-GMO supplies. 5(7/8):10-11. Annual Industry Overview 2000.
• ***Summary:*** GeniSoy's parent company, MLO Products, was founded 36 years ago [in Nov. 1964] as a sports nutrition company that relied heavily on soy protein. Today its subsidiary, GeniSoy Products Co., launched only three years ago (in March 1997), accounts for about 50% of total sales–of about $40 million, to which GeniSoy contributed $18 million in FY 2000 (ended April 30). More remarkable, GeniSoy's $18 million is double what it was a year ago, and it is expected to double again next year.

MLO had traditionally marketed soy protein drinks aimed at athletes between the ages of 15 and 40. GeniSoy products are targeted to an entirely different market–those (mostly women ages 35 to 69) areas in which soy provides benefits, such as heart disease, menopause symptoms, etc. The idea come to MLO quite by accident about 5½ years ago when they were asked by another company to produce a soy protein bar for a university study on soy and cancer. After GeniSoy was launched, its products were sold mainly through MLO's established distribution channels. But soon they picked up many new distributors.

When the FDA announced its soy-heart health claim in Oct. 1999, soy became a very hot category. Many retailers began to develop a "soy set" in their stores–an area where soy products are grouped together. General Nutrition Centers (GNC), for example, are developing such a set, and GeniSoy's products tend to sell more quickly when they are placed in such a set than when they are placed with other bars.

Many consumers believe that soy products don't taste so god, but when they try GeniSoy bars they quickly change their minds and tell their friends. So bars are a great way to introduce consumer to soy.

In Feb. 1999 GeniSoy introduce their first products guaranteed to be free from genetically engineered organisms (GMOs); these included two shakes and one protein powder in the new UltraSoy line. The company says these were made more for the European than for the American market. Later in 1999 the GeniSoy secured a long-term supply contract for non-GMO isolated soy protein from Protein Technologies International, then announced in October 1999 that its entire product line would be made with non-GMO soy.

Recently MLO Products completed a new plant at its Fairfield headquarters, thus bringing its total office and manufacturing space to 125,000 feet. Its extruded candy production capacity has grown to 20 million bars/month. It plans to bring in-house its formerly contracted soynut roasting facilities with a capacity of 2 million lb/month.

Today GeniSoy has 29 SKUs in the U.S. market, 26 in Canada, and 15 in Australia. Two new products are scheduled for release next year: (1) A kind of a soy chip, between a potato chip and a mini rice cake, that will meet the FDA health claim; (2) A Soy Nutty Bar, made with toasted soy nuts, and tasting like a candy bar.

Note: This is the earliest document seen (Sept. 2000) that gives statistics for larger U.S. nutrition bar companies.

2705. Traynor, Marty. 2000. Health threats loom over GMO debate: Included as a marker, antibiotic resistance bred into crops has disastrous potential. *Natural Foods Merchandiser* 21(9):1, 26, 28. Sept.
• ***Summary:*** Scientists have found that genetically engineered (GE) genes in crops can jump from one species to another. Prof. Hans-Heinrich Kaatz, a zoologist at the Institute of Bee Research, Univ. of Jena, Germany, has found that genes spliced into canola (oilseed rape, so that the crop would resist a specific herbicide) were transferred to bacteria in the guts of bees. Then he removed canola pollen from the legs of bees and fed the pollen to young bees. Upon examining the intestines of the young bees, he found that some carried the gene that resisted the herbicide.

Why are scientists concerned about genes jumping from one species to another? The reason is not obvious. One of the genes used as a marker in genetic engineering is

resistant to antibiotics. That marker can be used in two ways: (1) To identify cells or organisms to which the new trait was transferred, and (2) to prevent theft of GE seeds.

Scientists are concerned about what will happen if that resistance to antibiotics is transferred to humans. Joe Cummins, PhD and professor emeritus of genetics at the University of Western Ontario believes that the spread of antibiotic resistance is the main threat from genetically engineered crops. The biotech industry say that GE involves the transfer of a gene from organism that has the desired trait to another than lacks it. But its not that simple. Biotechnologists have to do more than just insert the desired genes. They have to build a tool or "gene package" to trick the plants into accepting and incorporating the foreign genes. This tool includes a "promoter" which is almost always a gene from the Cauliflower Mosaic Virus; this gene makes the cells defenses less effective. An antibiotic gene is also added to the mix as a marker, which allows biotechnologists to identify that small proportion of cells in which the transfer has been successful. Researchers pour antibiotics into the cells; the ones that do not die are the ones they want. But GMOs face a scary future because these antibiotic-resistant genes could be transferred to pathogens.

A long sidebar discusses the present separate problem of how misuse of antibiotics has spawned a new generation of "superbugs" that are resistant to antibiotic drugs. Nearly 6 million pounds of antibiotics are used in food production each year, both to fight livestock diseases and to promote livestock growth. Resistant bacteria may spread to the people who eat this meat.

Three new books on genetic engineering of food are cited.

2706. Mullin, W.J.; Miller, S.S. 2000. The influence of polysaccharides on soybean water absorption. In: Kyoko Saio, ed. 2000. Proceedings–Third International Soybean Processing and Utilization Conference. Tokyo, Japan: Korin Publishing Co., Ltd. [xxiv] + 728 + 8 p. See p. 150. [1 ref]
Address: 1. Agricultural & Agri-Food Canada, Southern Crop Protection & Food Research Centre, Food Research Program, Guelph, ON NIG 5C9; 2. Agricultural and Agri-Food Canada, Eastern Cereals and Oilseeds Research Cetnre, Ottawa, ON K1A 0C6.

2707. *Ontario Soybean Growers Newsletter.*2000. China's water crisis. Oct. p. 12.
• ***Summary:*** China, with 22% of the world's population and only 7% of the world's fresh water supply, is facing serious water shortages. Chinese leaders agree that water shortages could be one of the country's major issues during the next 20 years. Deep wells are now dry and everyone along the major rivers is clamoring for more water. With China's rivers drying up, the country's production of grain and soybeans is expected to drop steadily. Therefore imports will increase. Economics favors use of water in urban rather than rural agricultural areas.

In Nov. 1999 a new Canada-China Bilateral agreement was signed. These changes are expected to take place when China joins the World Trade Organization (WTO). In 1998 China was Canada's 4th largest trading partner, behind the U.S., Japan, and the United Kingdom. The Canadian soybean industry continues to view China as a key market.

Note: In recent years, China has also suffered from severe floods, caused largely by deforestation and overpopulation. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2708. Poysa, V.; Woodrow, L.; Anderson, D. 2000. Effect of soy protein composition on soymilk and tofu yield and quality. In: Kyoko Saio, ed. 2000. Proceedings–Third International Soybean Processing and Utilization Conference. Tokyo, Japan: Korin Publishing Co., Ltd. [xxiv] + 728 + 8 p. See p. 53-54.
Address: Agriculture and Agri-Food Canada, Greenhouse and Processing Crops Research Centre, Harrow, Ontario, Canada, NOR 1G0.

2709. **Product Name:** [Tempeh, and Handmade Tempeh-Seitan Sausages].
**Foreign Name:** Tempeh, Saucisses Artisales Tempeh et Seitan.
**Manufacturer's Name:** Produits Naturels Compagnards.
**Manufacturer's Address:** 3325 Rue Hugh-Greene, Rawdon, PQ J0K 1S0. Phone: 450-834-7391.
**Date of Introduction:** 2000. October.
**Ingredients:** Sausages: Tempeh, seitan, whole-wheat bread crumbs, filtered water, nutritional yeast, extra virgin olive oil, tamari, spices, potato flour, guar gum.
**New Product–Documentation:** Letter (fax) from Brian Morin. 2001. Feb. 22. He started making and selling Tempeh and Tempeh-Seitan Sausages on 1 Aug. 2000.

Form filled out and letter from Brian Morim. Gives his current address, phone, fax, email (morin_brian@hotmail.com) and the ingredients for his sausages in French and English. He expects the labels to be ready by Aug. 2001.

2710. Williams, Phil. 2000. Application of near-infrared spectroscopy to soybean quality. In: Kyoko Saio, ed. 2000. Proceedings–Third International Soybean Processing and Utilization Conference. Tokyo, Japan: Korin Publishing Co., Ltd. [xxiv] + 728 + 8 p. See p. 131-135. [5 ref]
Address: Canadian Grain Commission, Grain Research Lab., 1404-303, Main Street, Winnipeg, Manitoba, Canada R3C 3G8; e-mail: pwilliams@cgc.ca.

2711. *Canadian Soybean Bulletin (OSG, Chatham, Ontario, Canada).*2000. Canadian soybean exports. 14(2):3. Nov.

• ***Summary:*** A large table shows statistics in tonnes (metric tons) of soybeans exported to various countries, and regions, each year from 1996/97 to 1999/2000. The countries are: In Asia–China, Hong Kong, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, and Thailand. In Western Europe–Austria, Belgium, Denmark, France, Germany, Italy, Netherlands, Norway, Portugal, and Spain. By continent–Africa, Central America, Eastern Europe, Middle East, Oceania, South America, and United States.

In 1999/2000 the countries to which the largest amount of Canadian soybean exports went were (in tonnes): Japan 179,708, United States 121,860, Malaysia 99,919, Indonesia 64,426, Denmark 47,444, Germany 43,410, and Netherlands 36,392.

2712. *Canadian Soybean Bulletin (OSG, Chatham, Ontario, Canada).*2000. Incoming Japan soybean mission. 14(2):1. Nov.
• ***Summary:*** Japan imports 5 million tonnes (metric tons) or 184 million bushels soybeans each year. Of that, about 1 million tonnes (20%, or 37 million bushels) are used to make soyfoods such as tofu, miso, natto, soy sauce, etc. Of the 1 million tons, 500,000 tonnes (50%) are for tofu, 160,000 tonnes (16%) are for miso, and 130,000 tonnes for natto.

Exports of Canadian have been increasing rapidly, from 36,000 tonnes in 1995, to 75,000 tonnes in 1998, to 175,000 tonnes in 2000.

In Sept. 2000, the Canadian Soybean Export Association and the Ontario Soybean Growers hosted ten Japanese from the soyfoods industry and showed them the Canadian soybean industry. These Japanese were most appreciative "of our efforts to segregate GMO and non-GMO varieties of soybeans using our Identity-Preserved, or IP program."

2713. Jenkins, D.J.; Kendall, C.W.; Vidgen, E.; et al. 2000. Effect of soy-based breakfast cereal on blood lipids and oxidized low-density lipoprotein. *Metabolism* 49(11):1496-500. Nov. *

2714. Woodrow, Lorna; Poysa, Vaino; Anderson, Dale. 2000. Effects of soy protein composition on soymilk and tofu yield and quality. *Canadian Soybean Bulletin (OSG, Chatham, Ontario, Canada)* 14(2):4. Nov.
• ***Summary:*** For these studies, five large-seeded, food-grade soybean cultivars with acceptable agronomic performance were used. 100 seeds averaged 25 gm in weight and his protein contents, averaging 46% on a dry matter basis (range 44-48.4%). They were used to make silken (kinugoshi) tofu, using two different coagulants: glucono-delta lactone (GDL) or calcium sulfate dihydrate (CS).

There was a significant positive correlation between seed protein content and tofu yield, tofu hardness, and tofu firmness. The 11S and 7S proteins represent 70% of the total protein in the soybean and form the gel when soymilk is coagulated to make tofu. "They are considered to be the key proteins in determining tofu quality." They are extracted then separated by electrophoresis. These cultivars demonstrated a wide range in their content of 11S and 7S proteins. The seed protein profile also changed very significantly from year to year. The 7S content was positively correlated with tofu yield, whereas the 11S content was not. Address: Greenhouse and Processing Crops Research Centre (GPCRC), Highway 18 East, Harrow, ON N0R 1G0, Canada.

2715. *SoyaScan Notes.*2000. Chronology of major soy-related events and trends during 2000 (Overview). Dec. 31. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Jan. 8–The Kerry Group (of Wisconsin and Iowa) purchases Solnuts, a pioneer manufacturer of dry-roasted soynuts, in Hudson, Iowa.

Jan.–Kraft Foods Inc. (Illinois) purchases Boca Burger Inc., America's third largest maker of veggie burgers, after Worthington Foods and Gardenburger.

March 6–The Hain Food Group announces that it will acquire the Celestial Seasonings tea company to become the largest natural foods company in the USA.

March 9–The USDA formally approves a rule change allowing soy protein products to completely replace meat products in the Federal School Lunch Program.

March 31–Monsanto, the world's leading agricultural biotech company, merges with Pharmacia & Upjohn (a large pharmaceutical company), and the new company is renamed Pharmacia Corporation.

April–An article by Lon White on tofu and brain aging is published in *J. of the American College of Nutrition.*

June 9–20/20 (ABC) television program, titled "Soy–The untold story," airs on Friday at 10:00 p.m. discusses many of the shortcomings of soyfoods, but in a very fair way.

June 13–Martha Stewart, on her popular nationwide TV program *Living,* has a very positive segment on edamamé.

July 14–Lightlife Foods Inc. (of Turners Falls, Massachusetts) is purchased by ConAgra Inc., a $25 billion food company based in Omaha, Nebraska–for an undisclosed amount. Lightlife's plant, employees, and management team will stay in place. Lightlife is a leading maker of vegetarian meat alternatives, with 150 employees and about $25 million in annual sales.

July–At a joint meeting of ASA and USB, the International Soy Protein Program (ISPP) was born as ASA and the Illinois Soybean Program Operating Board (ISPOB) formalized their joint commitment to "Increase the international consumption of soy protein by humans in new

markets–developing countries–and thereby create new opportunities for disappearance of soybeans and provide higher economic returns to U.S. soybean producers." ISPOB and its Executive Director Lyle Roberts were instrumental in conceiving the program and raising its initial funding. This program was later reamed WISHH.

Sept.–Monsanto's patent on glyphosate expires. Glyphosate is the active ingredient in *Roundup,* the world's best-selling herbicide.

Dec.–Sanitarium Foods of Australia acquires the 47% of SoyaWorld owned by Sunrise Soya Foods (Vancouver, BC, Canada).

Trends: 1. This year, the momentum created by the FDA health claim in Oct. 1999 has propelled the soyfoods industry to new heights. Existing companies are growing rapidly, and many new companies (including some of America's biggest food companies) are entering the market with new products.

2. This year, for the first time, soymilk has become a mainstream American beverage. As of May, White Wave Silk soymilk is sold in 24,000 supermarkets nationwide. Edamamé (green vegetable soybeans) have gone mainstream in California, and are rapidly becoming popular on both coasts of the USA.

3. In the United States and Europe, the tide seems to be flowing increasingly against genetic engineering of foods and food plants. More and more companies in the natural foods industry are labeling their products as "non-GMO" or "GMO-free" or "No GMOs." Monsanto has stopped its efforts to develop genetically engineered soybeans for food use and focused its attention instead on livestock feeds. It now seems likely the genetic engineering of plants has a future, but not in the area of foods–at least in developed countries.

4. Interest in "food-grade soybeans" continues to grow in the USA and has increased substantially this year. Canada began focusing on identity-preserved food-grade soybeans 10-15 years before the USA. U.S. interest began to grow in about 1995 with the introduction of genetically engineered soybeans and with the accelerating interest in food uses of soybeans.

5. While pro-soy articles (mostly about health benefits) continue to increase, so do anti-soy articles and Internet sites. The loudest anti-soy voices are those of Sally Fallon and Mary Enig of the USA (they believe traditional fermented soyfoods–such as miso, shoyu, natto, and tempeh–are good, traditional non-fermented soyfoods–such as tofu, soymilk, and edamamé–are not very good, and modern soy protein products–such as soy protein isolates, concentrates, and textured soy flour–are the worst of all, being highly processed with chemicals such as hexane solvent), Richard and Valerie James of New Zealand, and Lon White of Hawaii. Some of the concerns they raise are legitimate and deserve further research, but the majority (we believe) are not. Nevertheless, many of the health claims made for soy in popular articles are exaggerated or somewhat sensational, and not firmly supported by scientific evidence.

6. As we are about to enter a new century and a new millennium on 1 Jan. 2001, soyfoods appear to have a bright future, worldwide. This past year has seen more activity and interest in, and media coverage of, soyfoods than at any time in the history of the United States.

2716. **Product Name:** Organic Brown Rice Miso, or Organic Barley Miso (Aged 2 Years).
**Manufacturer's Name:** Tradition Miso.
**Manufacturer's Address:** R.R. #4-2090, Claremont, ON L1Y 1A1, Canada. Phone: 905-649-2513.
**Date of Introduction:** 2000. December.
**Ingredients:** Organic soybeans, organic rice or barley, unrefined sundried sea salt [from Brittany, France], deep well water, culture *(Aspergillus oryzae).*
**Wt/Vol., Packaging, Price:** 450 gm glass jar. Retails for Canadian $10/jar (2001/04, Ontario, Canada).
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Jerry Lewycky (whose last name is pronounced luh-WIK-ee), founder and owner. 2001. April 20. Jerry and his wife and co-worker, Suzanne Cardinal, first began selling their two long-term misos in Dec. 2000. Their company name is Tradition Miso and they sell their miso in glass jars. They now have two distributors. Jerry and his wife make two vats of miso a year. Each vat holds 7,000 lb. of miso. They have no plans for a short-term miso. His miso should be refrigerated. The jar has a special continuous-thread lid that breathes to enable gas to escape. He sells his miso only in Eastern Canada at about $10/lb. His biggest competition is Cold Mountain Miso (from southern California) which retails in Ontario for Canadian $7-8 for a 400 gm plastic tub. South River Miso is more expensive than his at Canadian $14-15/lb glass jar, but South River has more varieties of miso, so Jerry's two varieties have displaced only some of South River's. The salt he uses is gray, unrefined, and wet. It comes from Brittany, France. Other misos use partially refined salt.

Labels for Organic Brown Rice Miso and for Organic Barley Miso sent by Jerry Lewycky. 2001. April 27. Brown Rice: Black and reddish brown on yellow. Barley: Black and reddish brown on silver. On each, below the large word "Miso" is printed "aged two years." The logo looks like a monk sitting in meditation.

New Labels brought to Soyinfo Center by Jerry, Suzanne Cardinal, and their two kids, Katrina and Maxim. 2007. Jan. 2. (1) Organic Barley Miso: Black and reddish brown on gray. Aged 3 years. Product with this label first sold April 2006. (2) Organic Brown Rice Miso: Black and reddish brown on light yellow. Product with this label first

sold Sept. 2006. Each is certified organic by OCPRO Canada. The logo is still the black illustration of the monk.

2717. Jenkins, D.J.; Kendall, C.W.; Garsetti, M.; et al. 2000. Effect of soy protein foods on low density lipoprotein oxidation and ex vivo sex hormone receptor activity–A controlled crossover trial. *Metabolism* 49:537-43. *

2718. Davis, Brenda; Melina, Vesanto. 2000. Becoming vegan: The complete guide to adopting a healthy plant-based diet. Summertown, Tennessee: The Book Publishing Co. v + 281 p. Index. 25 cm. [153 ref]
• ***Summary:*** An excellent vegan sourcebook (not a cookbook) by two registered dietitians. Contents: Acknowledgements. From the authors. 1. Vegan roots. 2. Perspectives on vegan health. 3. Plant protein. 4. Big fat lies. 5. The two faces of carbohydrates. 6. Prospecting for minerals. 7. Vitamins for vegan vigor. 8. Phytochemicals. 9. The vegan food guide. 10. Building vegan dynamos. 11. Growing vegans. 12. The prime of life. 13. Overweight. 14. Eating disorders. 15. Underweight. 16. The vegan athlete. 17. Vegan diplomacy.

This book begins with a good history of veganism and contains (throughout the book) a wealth of accurate, positive information about many different types of soyfoods (especially tofu) and related subjects, including tofu, soymilk, tempeh, soy yogurt, soy cheese, soy sauce, tamari, and soy oil (incl. omega-3 fatty acids). Plus Adventist Health Studies, dietary fiber, phytochemicals and sea vegetables. Address: 1. Kelowna, British Columbia; 2. Langley, British Columbia. Both: Canada.

2719. Rose, Robert. ed. 2000. Beans, lentil & tofu gourmet. Toronto, Ontario, Canada: Robert Rose, Inc. 192 p. Illust. Index. 26 cm.
• ***Summary:*** This is an unusual but attractive book, with no real author or publisher. It was written by "The editors of Robert Rose" and published by Robert Rose Inc., with financial support of the government of Canada. Basically, it is a collection of recipes from other cookbooks. Except in the chapter titled "Meatless" (p. 145-62), many recipes contain meat, poultry, fish, or seafood. The section titled "Contributing authors" lists eight authors, with photos and descriptions of their cookbooks, and statements such as "Recipes from this book are found on pages 23, 38, 69, and 180." The book contains 12 full-page color photos of dishes prepared from the recipes.

Contains 13 tofu recipes and one tempeh recipe: Malay vegetable-stuffed fried bean curd with spicy sweet-and-sour sauce. Bak choy noodle and tofu chicken soup. Curry-fried tofu soup with vegetables and udon noodles. Mixed vegetable herb broth with soft tofu. Chickpea tofu stew. Braised stuffed bean curd. Braised roasted pork with tofu and green onions. Steamed shrimp-stuffed tofu with broccoli. Hoisin stir-fried vegetables and tofu over rice noodles. Barbecued tempeh with basil, hyssop and ginger. Chickpea tofu burgers with coriander mayonnaise. Thai dry vegetable curry (with tofu, p. 162). Pea tops with pancetta and tofu. Soy-braised tofu, cabbage and ginger with cellophane noodles (with soya sauce, p. 172-73). Address: 120 Eglington Ave. E., Suite 1000, Toronto, ONT Canada. Phone: (416) 322-6522.

2720. **Product Name:** Sea-fu (Tofu with Sea Vegetables).
**Manufacturer's Name:** Silverking Soyafoods.
**Manufacturer's Address:** 508-C Latimer Street, Nelson, BC, V1L 4T9, Canada. Phone: 250-352-5897.
**Date of Introduction:** 2001. January.
**Ingredients:** Incl. water, soybeans, four types of sea vegetables, coagulant.
**How Stored:** Refrigerated.
**New Product–Documentation:** Talk with Jeff Mock, owner. 2001. May 18. He introduced this product on 22 Jan. 2001. He stirs four types of sea vegetables (hijiki, dulse, arame, and bull kelp) into the hot soymilk before adding the coagulant to make the tofu.

2721. **Product Name:** Nature's Path Organic Optimum Power Breakfast: Flax, Soy, Blueberry.
**Manufacturer's Name:** Nature's Path.
**Manufacturer's Address:** 7453 Progress Way, Delta, BC V4G 1E8 Canada. Phone: 703-799-9660.
**Date of Introduction:** 2001. February.
**Wt/Vol., Packaging, Price:** 14 oz (400 gm) paperboard box.
**How Stored:** Shelf stable.
**New Product–Documentation:** Ad in *Natural Foods Merchandiser* (8½ by 11 inches, color). 2001. Feb. p. 27. "Optimum's the word (for soy)."

2722. *Ontario Soybean Growers Newsletter.*2001. Ontario's Edible Oil Products Act. Feb. p. 5.
• ***Summary:*** "Ontario's Edible Oil Products Act [OEPA] makes it illegal to manufacture or sell in Ontario any product that: (a) combines a non-dairy oil or fat with a dairy product; and (b) is an imitation of, or resembles, a dairy product.

"This Act effectively prohibits the sale of many soy-based dairy analogs that are widely available in other jurisdictions across Canada. For example, people in B.C. [British Columbia] can enjoy soybased cheese, but that cheese is not allowed to be sold in Ontario. These products represent new marketing opportunities for Ontario's soybean growers as many of them are made with soybean oil or protein.

"Last year, a joint federal-provincial working group recommended that "provinces should deregulate products that imitate or resemble dairy products, whether or not they

contain dairy ingredients, and defer to existing federal regulatory processes that address the consumer information and fraud issues." The Province of Ontario consulted with stakeholders on this recommendation, and the Ontario Soybean Growers, as well as the Edible Oil Foods Association of Canada, responded favourably. In light of this recommendation, and the favourable responses received, Ontario should have proceeded to repeal the Edible Oil Products Act.

"Unfortunately, it appears that at this time, the government of Ontario is bending to the will of the dairy producers and will not eliminate this discriminatory Act.

"The OSG has asked Soyfoods Canada, a new soyfoods industry association, to adopt this issue as a top priority, and press the Ontario government to make changes." Address: Chatham, ONT, Canada N7M 5L8.

2723. Gupta, Raj. 2001. Changes in ownership of SoyaWorld, Inc. (Interview). *SoyaScan Notes.* March 17. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** In Dec. 2000, Saputo, a large American cheese company, acquired Dairyworld Foods (Burnaby, British Columbia, Canada) and thereby also acquired Dairyworld's 50% ownership of SoyaWorld, Inc.

Then in Jan. 2001 Sanitarium Foods of Australia bought Peter Joe's 50% ownership of SoyaWorld. Maheb Nathoo is still the managing director of SoyaWorld, and the company is doing well. Maheb is basically a financial man.

The soymilk company in Scotland, which used ProSoya technology and which Dusty Cunningham helped to start, has declared bankruptcy. Raj is now negotiating with another company to take over the plant and equipment.

Raj has heard that Dean Foods is for sale, and that White Wave's Silk is not yet profitable. Address: President and CEO, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2724. Flaming, Dennis. 2001. Highlights of Soyfoods 2001 [conference in Phoenix, Arizona]. *Soyfoods Canada Newsletter.* March. p. 2.
• ***Summary:*** Contents: Soyfoods–A trend not a fad. Who is buying soyfoods? Success factors and trends. Innovation. Opportunities. This conference, held Jan. 17-19, was a good place to learn about the business challenges, opportunities, and recent trends in the soyfoods sector.

2725. **Product Name:** So Nice Soyganic [Mocha].
**Manufacturer's Name:** SoyaWorld Inc.
**Manufacturer's Address:** Blaine, Washington 98230. Phone: 1-877-414-2078.
**Date of Introduction:** 2001. March.
**Wt/Vol., Packaging, Price:** 1 quart.
**How Stored:** Refrigerated.
**New Product–Documentation:** Leaflet (8½ by 11 inches, color, single sided) from Natural Products Expo West (Anaheim, California). 2001. March 8-11. "So Nice... So delicious. New So Nice Soyganic Mocha. New flavor." A large color photo shows the carton and Label. "Enriched soy milk. Enriched with 14 essential nutrients & low fat. Made with certified organic soybeans. ProSoya Process." Website: www.sonice-soyganic.com.

2726. SoyaWorld Inc. 2001. Corporate profile (Leaflet). Burnaby (suburb of Vancouver), BC, Canada. 1 p. 28 cm. Single sided.
• ***Summary:*** This leaflet, printed on one side using a color printer, describes the company and its four products: So Good, So Nice Soyganic, Sunrise, and Rice Choice. No address or phone number are given. Address: 4074 Lozells Ave., Burnaby (suburb of Vancouver), BC, Canada.

2727. SoyaWorld Inc. 2001. Healthier sales, healthier profits in a heartbeat (Leaflet). Blaine, Washington. 1 p. Front and back. 28 cm.
• ***Summary:*** On the front of this glossy color leaflet are color photos of four So Nice Soyganic soymilk products in three different cartons: 1 quart gable-top, ½-gallon gable-top with screw cap, and 1 quart Tetra Brik Aseptic Slim. Nine benefits of the products are listed, incl. "No refined sugar–Soy Nice Soyganic is subtly sweetened with organic agave syrup naturally extracted from the blue cactus of Mexico." Note: This syrup has a very low glycemic index. On the back, tables show nutritional information, ingredients for each of four flavors (natural, original, vanilla, chocolate), UPC codes and case and pallet ordering information. Website: www.soyaworld.com; www.sonice-soyganic.com. Address: Blaine, Washington 98230. Phone: 1-877-414-2078.

2728. SoyaWorld Inc. 2001. So Nice: Better taste, better flavor, better for you (Leaflet). [British Columbia, Canada]. 1 p. 6 panels. Front and back. 17 x 10 cm.
• ***Summary:*** On the front panel of this glossy color leaflet is a color photo of a carton of So Nice Soyganic Original Soy Milk. Contents: About So Nice Soyganic. A healthy alternative to cow's milk: Soy and its protective compounds. Three recipes. Four flavors and three sizes: quart gable-top, ½-gallon gable-top with screw cap, and 1 quart Tetra Brik Aseptic Slim. Nutrition facts and ingredients. Website: www.soyaworld.com; www.sonice-soyganic.com.

2729. *Soyfoods Canada Newsletter.*2001. Serial/periodical. Chatham, Ontario, Canada: Soyfoods Canada. Vol. 1, No. 1. March 2001—. Editor & Publisher: Janet Nauta. Frequency: Quarterly.
• ***Summary:*** This newsletter is published at the offices of the Ontario Soybean Growers in Chatham. However the

address of the new organization for which it is published (as of July 2001) is: Soyfoods Canada, Box 1927, Blenheim, Ontario N0P 1A0, Canada. Address: Chatham, Ontario, Canada.

2730. *Soyfoods Canada Newsletter.*2001. Founding members of Soyfoods Canada. March. p. 1.
• ***Summary:*** Soyfoods Canada was started just 4 months ago. The eighteen founding member companies are: ADM Protein Specialties, C&M Seeds, Galaxy Foods, Momo's Kitchen, Nutri-Passion Foods Inc., Ontario Soybean Growers, SoyaWorld Inc., Sunrise Soya Foods, Tofutti-Cholac Foods, Art Allen Consulting, Flamaglo Food Consultants Ltd., Meatless Gourmet, Moulin Aux Abenakis Inc., OntarBio, Snobelen Farms Ltd., St. Clair Agri Services Ltd., Superior Tofu Ltd., W.G. Thompson & Sons Ltd.

Note: Membership costs $500 per year. Address: Soyfoods Canada, Box 1927, Blenheim, Ontario N0P 1A0, Canada.

2731. *Newsweek.*2001. Faking it: Home cooking–Periscope. April 2. p. 9.
• ***Summary:*** This half-page picture-story shows the labels of six meat alternative products over a white plate on a blue table mat. A brief evaluation accompanies each product. From top center clockwise: Smart Bacon (made by Lightlife). Wunderdogs (Lightlife). Yves Veggie Salami Deli Slices. Boca Burger. Veat Vegetarian Breast (of Chicken). Nate's Meatballs–Classic Flavor. The highest ratings were given to Nate's meat balls, Wunderdogs, and Smart Bacon.

The text explains that even though Mad Cow Disease has not yet hit the USA, some flesh-eaters are thinking twice about beef. Luckily for these "unwilling vegetarians" the improved texture and flavor of soy products can now sate the appetites of these carnivores. Signed: Periscope's guide to the world of soybeans.

2732. Callahan, Patricia; Kilman, Scott. 2001. Seeds of doubt: Some ingredients are genetically modified, despite labels' claims. Lab test finds altered DNA in SoyO's, Veggie Bacon, belying market pitch. No proven dangers to health. *Wall Street Journal.* April 5. p. A1-A14.
• ***Summary:*** Tests of 20 food products bearing the words "Non-GMO" on their package, commissioned by *The Wall Street Journal*, found some genetically engineered (GE) material in 11 products, and more substantial amounts in another 5 products. The largest amounts of GE soybeans were found in Yves Canadian Veggie Bacon. Yves first placed the new label on its products about a year ago, but the company isn't recalling packages already on the shelves because, according to a spokesman, there are no safety or health issues associated with GE soybeans. However the federal Food, Drug, and Cosmetic Act prohibits placing misleading labels on food products.

The non-GMO label is one of the hottest new trends in food marketing. Industry watchers believe the non-GMO segment is growing about as fast as that of organically grown products, a market worth $7.8 billion that is growing at 8 times the rate of the packaged foods market as a whole.

In late Jan. 2001, a national phone survey conducted by the Pew Charitable Trusts, found that 75% of respondents wanted to know about the presence of GE ingredients in food, and 58% opposed such ingredients. The carton of Silk-brand soymilk, made by White Wave, promises that its contents are "Certified GMO Free Soy." However, says the article, there is no such thing as "certified GMO-free." This long, excellent article discusses each of the many points at which a product can become contaminated with GE soybeans, then points out why no reasonable company should claim that none of its products labeled "Non-GMO" are 100% free. The first thing that is needed is a tolerance level, probably less than 1%.

In a letter to the editor (April 25) responding to this article, Gregory Jaffe (Co-Director, Biotechnology Project, Center for Science in the Public Interest, Washington, DC) notes that the FDA does not "approve" genetically engineered (GE) crops for humans. It does not even require notification before a GE crop is marketed. If a seed company wishes to voluntarily submit safety data on a GE crop, the FDA will review it to see that the food complies with existing laws. "The FDA should approve the safety of every genetically engineered food before it is marketed. Only a mandatory approval process will safeguard our food supply and bolster public confidence in those foods." Address: Staff Reporters, Wall Street Journal.

2733. Brown, Kathryn. 2001. Seeds of concern: Are genetically modified crops an environmental dream come true or a disaster in the making? Scientists are looking for answers. *Scientific American* 284(4):52-57. April. [7 ref]
• ***Summary:*** Contents: Introduction. Fewer poisons in the soil? At what cost to wildlife? Three worries: Innocent creatures will be hurt by insecticides built into GM crops, superweeds will arise, GM crops will suddenly fail because insect pests will suddenly evolve tolerance and weeds will evolve immunity. Seeding superweeds? How to make a genetically modified Bt plant. The latest crop of numbers. Taking refuge. More to explore.

Numbers: The USA produces 68% of the world's total GM crops, followed by Argentina (23%), Canada (7%), China (1%), and other (1%). The most common GM crops in 2000 were soybeans, corn, cotton, and canola. Of the total GM area worldwide, 58% was planted to soybeans, 23% to corn, 12% to cotton, and 6% to canola. Of the total GM area worldwide, 74% was modified for herbicide tolerance, 19% for insect resistance, and 7% for both. Soybeans were grown on 72 million ha worldwide and 36% of this area was planted to GM soybeans. These soybeans

were modified for herbicide tolerance. Most of the corn was modified for insect resistance but some was modified for herbicide tolerance and some for both (gene stacking). In 2000 some 44.2 million ha were planted to GM crops, 75.8% in industrial nations and 24.2% in developing nations. Address: Science writer, Alexandria, Virginia.

2734. *Ontario Soybean Growers Newsletter.*2001. Soyfoods Canada working to promote soy. April. p. 3.
• ***Summary:*** "Soyfoods Canada, a new industry association committed to the promotion of soyfoods, has had an excellent start. Although starting just 5 months ago, 21 companies from across Canada are already members of this organization.

"In May, Soyfoods Canada will take a first step towards achieving its goal of increasing consumer trial and usage of soyfoods. Several members of Soyfoods Canada are participating in the Good Food Festival, a major consumer food show in Toronto.

"Proposed future activities of Soyfoods Canada include hosting a soyfood symposium, developing a website, creating standards for soyfood processing, and lobbying the Ontario government for changes to the Edible Oil Products Act.

"Ontario Soybean Growers is a founding member of Soyfoods Canada." Address: Chatham, ONT, Canada N7M 5L8.

2735. *Ontario Soybean Growers Newsletter.*2001. Focus on safety nets. April. p. 1.
• ***Summary:*** "In this issue of the Ontario Soybean Growers newsletter, we are focusing our attention on safety nets for farmers. Safety nets are the #1 Priority issue for OSG. They have been featured in the farm press, as well as mainstream news, over the past several months.

"Starting on page 4, we provide a summary of what has happened on the safety net issue in the past two months. You will also find details of Quebec's stabilization program."

Note: "Safety nets" refer to government (taxpayer) payments or subsidies to agriculture in difficult times. Address: Chatham, ONT, Canada N7M 5L8.

2736. Soy Happy! 2001. "Get yer veggie dogs here!" Making the case for an all American healthy alternative in the ballparks (Color videotape). Los Angeles, California: VegTv.com. 8 minutes.
• ***Summary:*** An excellent color video. The goal of the Soy Happy! campaign, founded and led by Johanna (pronounced yo-HAN-nuh) McCloy, is to get "veggie dogs" (vegetarian/meatless hot dogs) into major league baseball parks and AAA baseball parks. The key concept is to give baseball fans a choice between a good-tasting, zero fat, zero cholesterol, low calorie vegetarian hot dog and the typical one loaded with meat and fat.

One spokesman says that about 100 million veggie dogs were sold last year in the USA, worth about $35 million in sales. The category has been growing at 25-35% a year in recent years, making it the fastest growing category in many supermarkets. Concession managers are realizing that veggie dogs make good sense financially.

Johanna says that (as of July 2001) seven major league baseball parks are now selling veggie dogs: Florida Marlins, Seattle Mariners [Washington state], Chicago White Sox, Toronto Bluejays, Montreal Expos, Oakland A's, and Los Angeles Dodgers.

Many movie stars endorse the idea on the video, and even more (including Tony La Russa, manager of the St. Louis Cardinals) endorse it on the video jacket. Dennis Weaver, for example, says that he became a vegetarian in 1958. If veggie dogs were sold at baseball games, that would be an incentive for him to attend the game.

Talk with Johanna McCloy. 2001. Sept. 17. This video was made in two parts. Most of it was shot in early April 2001, when only one ballpark had started to selling veggie dogs. The last part was shot in July 2001, when seven major league ballparks were selling them. For more details see Sept. 2001 interview with Johanna. Address: P.O. Box 42152, Los Angeles, California 90042. Phone: 323-363-7226.

2737. Amano, Shig. 2001. New developments with Amano Foods Ltd. (Interview). *SoyaScan Notes.* May 9. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Amano Foods outgrew its former plant in Burnaby, B.C., so it built a larger plant in nearby Richmond, BC. In about Sept. 1998 the company moved into its new plant. Business is better than ever. Graham Amano, Shig's son, is in charge of the company's miso operations. The miso is kosher, organic, and uses no genetically engineered ingredients. Address: Amano Foods Ltd., 5520 No. 6 Road., Richmond, BC V6V 1Z1 Canada. Phone: 604-303-9977.

2738. FutureHarvest. 2001. Research gives birth to Nigerian soybean industry: Tofu becomes a hunger fighter and cash earner for women farmers and entrepreneurs (Web printout). *www.scienceinafrica. co.za /may /tofu.htm.* May. Printed 27 Aug. 2009.
• ***Summary:*** The article begins: "Ask any farmer in central Nigeria which local food crop is good for her children, puts cash in her pocket, and enriches the soil, and she'll probably say 'soybean.' Then ask her how she prepares it, and she'll likely say 'as tofu.'

In just over two decades, Nigeria–the continent's most populous country (est. 148 million in 2007)–has become Africa's largest producer of soybeans and soy products. In the year 2000 Nigeria harvested about 500,000 tons of

soybeans, a 20-fold increase in just over 20 years. That crop, which was valued at US$85 million, "was used to produce a variety of traditional dishes, as well as processed foods such as soymilk and specially formulated foods to help malnourished infants and children."

"A near-perfect crop: 'Soybeans are a near-perfect crop for a country like Nigeria,' says Lukas Brader, director general of the International Institute of Tropical Agriculture, IITA, one of the 16 Future Harvest centers. 'Nutritionally, they carry twice the protein of meat or poultry and contain all eight essential amino acids needed for childhood development. Soybeans are also good for the environment,' Brader says. 'Because they evolved in Asia, they are far less vulnerable to local insects than African bean crops and require fewer insecticide sprays. They also fix atmospheric nitrogen, which reduces the need for farmers to purchase fertilizer.'

"Best of all, they are affordable. In Nigerian markets, soybeans cost about one-fifth as much as other forms of protein, including dairy and fish, and are easier to store and transport. "'Those are big advantages for a crop,' Brader says. 'But to get to that stage, our researchers had to produce an entirely new plant type that could cope with high disease pressure, compete with parasitic weeds, and grow in African soils.'

"'Basically, our plant breeders had to redesign the crop,' he says. IITA soybeans, he notes, are two to three times more productive under Nigerian conditions than U.S. and Asian varieties.

"Funding for the research, some US$20 million, was provided by the members of the Consultative Group on International Agricultural Research (CGIAR), building on seed money provided by Canada's International Development Research Centre (IDRC)."

"My Second Husband: 'Soybean has been a godsend for Nigeria,' says Professor Dele Fakorede, an agricultural expert based at Nigeria's Obafemi Awolowo University. 'Our farmers are earning good money, our small industries are prospering, and our children and young mothers are benefiting from a locally-made, protein-rich food.'

"Nigerian women would seem to agree. In Benue State, a major soybean producing area in the central part of the country, women farmers often describe the crop as their 'second husband' because it helps to pay school fees and medical bills.

"'Soybeans are making it possible for a lot of women to earn their own way and achieve a greater degree of independence than ever before,' says Fakorede.

"While the new plant types have made it possible to expand soybean farming across large parts of the country, most observers agree that what sparked production was the development of soy-based food products, including a West African version of tofu. It was a Japanese researcher, Osamu Nakayama, who got the idea to use tofu as a substitute for *wara*, a traditional but expensive kind of local cheese, says Brader. 'And, of course, there were skeptics.'

"'A lot of people had doubts that we would succeed or that tofu would ever be accepted by Nigerian consumers,' Nakayama says, 'but eventually we succeeded in making a good *wara* substitute using soymilk and local plant extracts.' Nakayama worked at IITA as part of a scientific exchange program sponsored by the Japan International Cooperation Agency (JICA).

"The idea, Nakayama says, came from watching what local village women did to prepare food for their families. 'We learned a lot through simple observation and by asking questions about traditional methods, he says.' Nakayama's 'wara-tofu' is similar in appearance to farmers' cheese or firm yogurt and has a taste and texture that's only slightly different than Asian-style tofu. Local cooks say that it is easily incorporated into traditional recipes and costs about a third as much as wara made from cow's milk.

"Today, the demand for tofu and other processed soy foods is growing at an annual rate of 20 percent, fueling a major cottage industry in rural Nigeria. A follow-up report by researchers at Nigeria's University of Ibadan points out that children who grow up in soybean-producing communities are generally healthier and suffer less malnutrition than the average Nigerian child. Improved nutrition, researchers believe, also helps to limit the spread of HIV/AIDS.

"In the places where soybeans are grown, roughly 40 percent of the income earned by women is thought to be derived from soybean production or processing. Thus far, nearly 100,000 Nigerians, three-fifths of them women, have been trained in soybean production and in the preparation of soy products by local NGOs, hospitals, and church groups working in cooperation with IITA and various government agencies.

"Currently, about 140 soy-based food products have been developed for use in Nigeria."

A color photo shows a Nigerian woman, in traditional dress, holding a plate filled with pieces of fried "wara-tofu."

2739. Cooper, Kim. 2001. Looking for early documents about the Ontario Soybean Growers (Interview). *SoyaScan Notes.* June 11. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** At the request of Soyfoods Center, both Kim and Fred Brandenburg have looked through all their vaults and files for documents relating to the founding of this organization and are unable to find any. The earliest documents they have been able to find are minutes from the 1960s. Their organization is under the Farm Products Marketing Commission.

Note: Originally named the "Ontario Soybean Growers Association," it was organized at a meeting at Leamington, Ontario, November 8, 1946. Address: Marketing Specialist,

OSG, Chatham, Ontario, Canada N7M 5L8. Phone: (519) 352-7730.

2740. Cooper, Kim. 2001. Major soybean crushers operating in Canada today (Interview). *SoyaScan Notes.* June 11. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** There are only two major soybean crushers currently operating in Canada: ADM Agri-Industries Ltd. in Windsor, Ontario, and CanAmera Foods, Ltd. in Hamilton, Ontario. The ADM plant is owned by ADM of Decatur, Illinois. CanAmera is owned by Ferruzzi-Montedison (of Italy), which also owns Central Soya Co. (USA). So neither of the two companies are Canadian owned.

In Ontario province there are also 5-6 smaller companies that use extruders to process soybeans into oil and meal. Address: Marketing Specialist, OSG, Chatham, Ontario, Canada N7M 5L8. Phone: (519) 352-7730.

2741. Cooper, Kim. 2001. Update on genetically engineered soybeans in Canada (Interview). *SoyaScan Notes.* June 11. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Canada has been growing identity preserved (IP) soybeans for many years, so when the genetically-engineered (GE) issue came along it was quite easy for Canada to adapt smoothly. They are presently working on an IP standard for the Canadian soybean industry, starting from the seed all the way up to loading containers. Kim does not like the term "non-GMO" because it has a negative slant and is inaccurate. Canada does not want to be known as a non-GE country, but as a country that can provide what the customer wants. Most of the soybeans that Canada ships for food-grade soybeans are sold as non-GMO with a specified guaranteed tolerance of either 99.0% or 99.5% non-GMO. This tolerance level has been included since about 1995 when Canadian companies first started getting requests for non-GMO soybeans. Initially they guaranteed whatever level the tests could measure. Canada refused from the start to say their soybeans were guaranteed to be 100% non-GMO–even though that is what their customers wanted. Thus they had to educate their customers about what was possible and realistic. Most of the Canadian companies exporting food-grade soybeans have an IP manual and accompanying documentation that the overseas companies sometimes come and audit. The documentation guarantees that the farmer bought certified seed, that he cleaned out his combine, etc. Address: Marketing Specialist, OSG, Chatham, Ontario, Canada N7M 5L8. Phone: (519) 352-7730.

2742. *SoyaScan Notes.*2001. Changes at Bunge (Overview). June 11. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** The parent company is Bunge Ltd. (Website: Bunge.com). On 15 May 2001 Bunge Corp. changed its name to Bunge North America, Inc. (Website: bungenorthamerica.com); this is a subsidiary of the parent company and is responsible for the parent company's operations in North America (USA, Canada & Mexico). Bunge-Lauhoff is a subsidiary of Bunge North America.

2743. *SoyaScan Notes.*2001. Hain Celestial Group Inc. of New York has just acquired Yves Veggie Cuisine (Vancouver, BC, Canada) (Overview). June 15. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Dana Jacobi read two days ago that Hain acquired Yves. Hain CEO Irwin Simon said Yves' offices would serve as Hain Celestial's new Canadian headquarters. See June 12 article in the *Globe & Mail* (Toronto, ONT, Canada). Yves is Canada's largest manufacturer of meat alternatives, but the majority of their sales are in the United States.

2744. Nathoo, Maheb. 2001. Soyfoods Canada: Firmly planted and ready to grow. *Soyfoods Canada Newsletter.* June. p. 1.
• ***Summary:*** Discusses developments during the past few months. As of June 18, the organization has 25 members, whose names are listed. There was a Soyfoods Pavilion at the Good Food Festival. The Government of Ontario has been lobbied on the Edible Oil Act.

Note: The first issue of this newsletter was dated March 2001. Address: Chairman, Soyfoods Canada.

2745. *Ontario Soybean Growers Newsletter.*2001. 2001 Project SOY winners. June. p. 1.
• ***Summary:*** "First place in the undergraduate / graduate category went to edible and biodegradable food packaging trays, developed by engineering students Marc-Antione Joly, Eugene Mohareb and Phoung Nguyen.

"First place in the diploma category was awarded to Udderly Soft, a lavender-scented udder balm for cows, developed by Kemptville College student Jason McIntosh.

A large photo shows Jason McIntosh and one other unnamed winner. Address: Chatham, ONT, Canada N7M 5L8.

2746. *Ontario Soybean Growers Newsletter.*2001. Canadian and Ontario acreage estimates. June. p. 1.
• ***Summary:*** A table shows estimates of intended acreage for soybeans, corn and winter wheat for Ontario, Quebec, and Canada (total) for 2001 and the actual planted acres for the 2000 crop year.

For soybeans, the two figures are (2000 / 2001): Ontario: 2,248,935 / 2,099,006. Quebec: 385,320 / 412,490. Canada (total): 2,639,689 / 2,518,906.

Note: In both years, the Canadian total is slightly greater than the sum of Ontario and Quebec because small amounts of soybeans were grown in Manitoba and perhaps

other provinces. Address: Chatham, ONT, Canada N7M 5L8.

2747. *Soyfoods Canada Newsletter.*2001. Who is buying soyfoods in Canada? June. p. 3.
• ***Summary:*** In Sept. 2000 Flamaglo Food Consultants commissioned a study by Omnitel on the market for soy products. The study was basically a national telephone interview with 2,000 Canadians, randomly selected. The data was provided by Francis Lo.

Findings: Tofu was the most popular soy product; about 25% of the sample had tried it during the past 12 months. About 18% of the sample had tried soymilk and less than 7% had tried soy-based meatless patties or sausages. Only a small percentage had tried soy ice cream.

In general: About 40% of the sample had consumed one of the above four products in the last 12 months. Most current users live in metropolitan areas with a population over 500,000. The higher the person's income and/or the higher their income, the greater their use of soyfoods. Current users tend to be female.

2748. *Soyfoods Canada Newsletter.*2001. Ontario Ag minister responds to concerns re: Edible Oils Act. June. p. 2.
• ***Summary:*** "The Edible Oils Act of Ontario prohibits the sale of foods that resemble dairy products and contain a mixture of a dairy product and an edible oil. This regulation effectively prohibits the sale of many soy-based dairy analogs that are widely available in other jurisdictions across Canada." This act favors dairy producers and hurts soyfoods makers or marketers.

Last year a federal-provincial working group recommended that provinces eliminate regulations on foods that resemble dairy products and defer to existing federal regulations.

2749. *Soyfoods Canada Newsletter.*2001. Our membership continues to grow. June. p. 1.
• ***Summary:*** "As of June 18, 2001, there are 29 members of Soyfoods Canada. The following companies have made a commitment to promote soyfoods in Canada."

New companies, not listed as founding members in the March 2001 issue are: B.C. & Harvest Trading Co. Cold Springs Farms. Concord National. Daminco. First Line Seeds. Hensall District Co-op. Innosoy Inc. Nutrisoya Foods. ProSoya Inc. South West Ag. Partners. Tetra Pak Canada. Yves Veggie Cuisine.

2750. *The Non-GMO Source (Fairfield, Iowa).*2001. Canadian farmers capitalize on demand for non-GM soybeans. 1(3):3-4. June.
• ***Summary:*** Fred Brandenburg, manager of Ontario Soybean Growers (OSG), says that Canada exported 439,000 tons of soybeans in 2000 and 400,000 tons of that (91.1%) was non-GM varieties.

Canadian farmers are now earning 35 to 50 cents a bushel premiums for growing identity preserved, non-GM soybeans for export mainly to Europe and Asia. Snobelen Farms, a soybean exporter in Ripley, Ontario, contracts with 500 farmers who grow non-GM soybeans. Snobelen exports about 50,000 tons/year, mostly to Europe.

Talk with Kim Cooper of OSG. 2001. June 13. Some of the statistics in the above article are incorrect. In 1999/2000 (the crop year goes from 1 Sept. 1999 to 31 Aug. 2000) Canada exported 946,360 tonnes (metric tons) of soybeans. Of that 439,000 tonnes were exported to Asia and at least 90% of the soybean exports to Asia were non-GM.

2751. *SoyaScan Notes.*2001. On the English-language etymology of "green vegetable soybeans," "edamamé," "vegetable-type soybeans," and "food-grade soybeans": A chronology of terminology (Overview). July 6. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** No other soyfood has had so much difficulty in finding a single, standardized name. To this day, soybeans picked when still fresh and green in the pods, boiled or steamed, and served like a vegetable, are called by a bewildering variety of names: *edamamé* (pronounced ay-duh-MAH-may, the Japanese name), fresh green soybeans, vegetable soybeans, green soybeans, edible green soybeans, green vegetable soybeans, immature green soybeans, green immature soybeans, immature soybeans, garden soybeans, garden-type soybeans, garden soys, branch-beans, etc. The short names are all ambiguous and the precise names are all too long. Fortunately, since the late 1990s, the media have increasingly used one name: edamamé.

The first attempt to describe green vegetable soybeans appeared on 12 April 1855 when T.V.P. [T.V. Peticolas] of Mount Carmel, Ohio, writing in the *Country Gentleman* said: "They are inconvenient to use green, being so difficult to hull." For the next few decades other writers followed this pattern of describing rather than naming the tender green beans.

In Dec. 1890 C.C. Georgeson, writing in the *Kansas Agric. Exp. Station Bulletin* first used the term "Edamamé" in an English-language publication to describe his seeds imported from Japan; but he was using the word as the name of a soybean variety, rather than as the name of a food type.

It wasn't until Jan. 1915 that a real name for these tender fresh beans first appeared–in the *USDA Bureau of Plant Industry, Inventory* No. 33. Referring to Plant Introduction No. 34702, from Shantung Province, China, Dr. William R. Faries of Coachella, California, wrote that he had received the seeds in December 1912. They "grow well here. They are fine for green shelled beans."

On 19 May 1917 Anna R. Van Meter, writing in the *Ohio Farmer,* called them "Green Soybeans." The only problem was that dry soybeans with green seed-coats are called by the same name.

In July 1918 William J. Morse, wrote in the *USDA Farmers' Bulletin* No. 973 about this "green-vegetable bean."

The name we prefer was coined by William Morse while studying soybeans in Japan. In July 1929 he first called them "Vegetable soybeans," then in Jan. 1931 he started using the term "Green vegetable soybean," and finally in March 1932 "green vegetable soybeans" (our preference). Morse made a major effort to introduce both the new varieties and the new way of eating them to America.

During the 1930s, six new terms were introduced: "green shelled soybeans" (USDA Bureau of Home Economics, 1933), "fresh green soybeans" (Carey Miller of Hawaii, 1933), "green immature soybeans" (Carey Miller and Ruth Robbins, 1934), "shell soy beans" (Dr. John Harvey Kellogg, letter of 9 Dec. 1935 to William Morse), "immature green soybeans" (Dr. A.A. Horvath 1938), and "immature garden soy beans" (Helen Parsons, Abby Marlatt, and George M. Briggs, 1939).

The name "Green vegetable soybeans" first appeared in the title of a publication in 1935; it was an article by Morse in the *Proceedings of the American Soybean Association* (p. 44-45). In the same article he began to search for terms to describe the new *type* of large-seeded Japanese soybeans from which the best edamamé are grown: Being unaware of the word edamamé, he coined the terms "vegetable types" and "green vegetable types." In 1938 he began to call them "edible soybeans."

But the name that stuck was first appeared in March 1939 in a famous bulletin titled "Eighteen varieties of edible soybeans," by J.W. Lloyd and W.L. Burlison of the Illinois Agricultural Experiment Station. They called them "vegetable-type soybeans" and distinguished then from typical "field-type soybeans."

Other terms used to refer to regular soybeans include "grain type" (Deodhar et al., 1973), "oil beans" (Liu et al., 1995), and "commodity soybeans" (Poysa, 1999).

During the 1930s and 1940s William Morse did more than any other person to try to introduce green vegetable soybeans and "edible- or vegetable-type" soybeans to America as a new food and to popularize their use. He wrote and lectured widely about them, and therefore he thought a great deal about what name would best describe them. He was in a unique position to see the big picture in terms of soybean terminology, and by the 1940s he had clearly settled on the terms "green vegetable soybeans" and "edible types" as those he preferred.

After 1940 only a few new names appeared: "Garden soys" (Edward Dies, 1942), "garden-type soybeans" (Allan K. Smith, 1959), and "branch-beans" (a literal English translation of the Japanese name *edamamé) (Organic Gardening and Farming,* July 1977).

Then in the late 1990s a new name burst upon the scene: "edamamé," the Japanese word for green vegetable soybeans cooked and served in the pods. This name was first used in an English-language document, as far as we can tell, in 1991, by the Jameson-Williams Co. of Fairmont, Michigan. The company issued a 2-page leaflet titled "What is edamamé?" By the late 1990s and early 21st century, food writers and manufacturers were using the word "edamamé" for all kinds of green vegetable soybeans, including shelled ones that would never be called "edamamé" in Japan.

Today, most people using the term "edamamé" don't realize that they are using it to mean "green vegetable soybeans" and that the word "edamamé" has long been used to refer to a subcategory of green vegetable soybeans–namely those that are cooked and served in the pods. Moreover, many do not understand the important connection between "vegetable-type soybeans" and "green vegetable soybeans." This is unfortunate.

After studying these terminology questions for more than 25 years, Soyfoods Center would like to see the following terms adopted: (1) Green vegetable soybeans: Vegetable-type soybeans picked green and cooked until tender. They may be served either in the pods (as edamamé) or shelled. This term has a 50-year history of use in the professional literature. (2) Edamamé: Green vegetable soybeans sold, cooked, and served in the pods. For shelled green vegetable soybeans we favor the term "shelled edamamé." In Japan, the latter are just starting to become available in the produce section of grocery stores, sold refrigerated (not frozen), typically in rigid containers with clear plastic tops and called either *mukimi edamamé* or *edamamé no mukimi* or *mukimamé. Mukimi* means "shelled" and *mukimamé* means "shelled beans." (3) Vegetable-type soybeans: Certain varieties of large-seeded soybeans (most with Japanese pedigrees and clear hilums) recognized for their good flavor and texture when used as food–either as green vegetable soybeans or tofu, soymilk, etc. This term has a 50-year history of use in the professional literature. In Japan, such seeds are called *edamamé no tane* ("edamamé seeds"). They are widely available in Japan in the spring in typical paper seed packets at grocery stores next to the produce department or the cut-flower department.

An alternative, simpler approach (now used by the American media) would be to call both (1) and (2) above "edamamé" then to call the shelled ones "shelled edamamé."

Unfortunately each of these three approaches and terms has its disadvantages. (1) Green vegetable soybeans is a very descriptive term, but it is quite long and unfamiliar to most Americans. Since "shelled green vegetable soybeans"

is much too long, "shelled edamamé" (a term now starting to be used in Japan) or "green shelled soybeans" might be better. (2) Edamamé is nice and short, and widely used in the American press since the late 1990s. But it is difficult for English speakers pronounce correctly if there is no accent on the last letter, yet no English words have accents, and the keyboard character (é) only exists in special foreign-language character sets, which are a nuisance to use frequently. (3) The term "vegetable-type soybeans" is easy to confuse with "green vegetable soybeans." Moreover, the term sounds strange when used to describe large-seeded (often clear hilum) soybean varieties preferred for making tofu or soymilk. In addition, most American's have never heard of "vegetable-type soybeans." The term "food-grade soybeans," widely used in Canada since the 1980s, has its own problems. First, it is often used to refer to all soybean varieties utilized to make foods, including small-seed varieties used to make natto and soy sprouts. Second, all soybeans can be considered "food grade."

2752. Drosihn, Bernd. 2001. Genetically engineered soybeans and soyfoods in Europe (Interview). *SoyaScan Notes.* July 23. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** In Europe, soybeans are still not familiar and not many are grown in Europe, so no European government would say to the population that they should eat more soy protein or make a health claim like that from the FDA in late 1999. Most of the soybeans now used to make foods in Europe come from South America or China; no more than 10-15% are grown in Europe. Imports from the USA and Canada have dropped dramatically because of the issue of genetically engineered (GE) soybeans.

For consumers, it has become a question of image; the image of North American soybeans is very bad in Europe. "Our customers ask us, 'What kind of soybeans do you use?' If we say that we use American or Canadian soybeans, then they will not trust our tofu." Even though Bernd makes his tofu from organic soybeans, he regularly tests all the soybeans he uses. He generally finds less than 1.01% are GE. Europe is definitely ahead of the USA in their awareness of GE issues.

Note: Since President George W. Bush took office, Europeans seem to be increasingly upset with U.S. unilateralism on a wide range of issues, from global warming to missile defense. They seem to be venting their frustration in the way they buy soybeans as well.

Talk with Jim Skiff, President of U.S. Soy, LLC. 2001. July 23. Jim has repeatedly observed exactly what Bernd described above. European consumers are upset with and distrust the USA; they reflect that in the way they buy soybeans. The U.S. government continues to try to force the Europeans to purchase our soybeans, which just makes matters worse. They don't understand the basic law of marketing–you have to give consumers what they want.

Christian Nagel no longer makes soyfoods; he now buys his tofu from Sojafarm (Lothar Stassen, Trechtingshausen, in central Germany). Tempeh is a very, very small product in Europe; not many companies currently make it.

In September Bernd plans to visit White Wave in Colorado. Address: Founder and president, Viana Naturkost GmbH, 54578 Wiesbaum / Vulkaneifel, Germany. Phone: +49 06593-99670.

2753. Nordquist, Ted. 2001. Making tofu the hard way in Cheboksary, Russia (Interview). *SoyaScan Notes.* Aug. 28. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Ted has just returned from two weeks (Aug. 4-18) in Russia working as a volunteer consultant to Soya-Ch [pronounced SOYA-chee], a small tofu company in Cheboksary, which is a city of about 340,000 people situated on the Volga River about 650 km east of Moscow–a 14-hour train ride from Moscow. "They were great people and I had a wonderful time." He was sent there by ACDI/VOCA, a volunteer overseas organization that uses American tax dollars to send American consultants overseas to help businesses that apply to VOCA for help. VOCA stands for "Volunteers in Overseas Cooperative Assistance." Website: www.acdivoca.org.

The tofu company is: Soya-Ch Closed Joint Stock Company, 42800 Chuvashia Republic, Cheboksary, Kanashskoe shosse, 19, Russia. Phone: 8352/66-93-78 or 66-92-69. Director: Alexeeva Anna Alexandrovna.

This tofu company was started in 1998 by Alexeeva, a woman who had previously been hospitalized with severe digestive problems. The doctors couldn't figure out what her problem was; she was near death. Fortunately, her closest friend had read about soy, so in the hospital she stopped consuming dairy products and started eating soyfoods. Her symptoms quickly disappeared, which proved that she was lactose intolerant. As soon as she got out of the hospital, she started a company making tofu. She is now director and she hired her husband, Alexeev Vaycheslav Konstantinovich, as deputy director, and the son of her closest friend as marketing director. They have 32 employees and make about 17 tonnes (metric tons) of tofu a year–which is not very much.

They have two Russian-made SoyaCow USM-150 semi-continuous systems. Each SoyaCow produces 150 liters/hour of soymilk, so the two lines produce about 300 liters/hour. The equipment is very poor quality (it does not use the airless cold grind process so the soymilk has a beany flavor) and the process by which they make tofu is extremely slow and inefficient because their instruction manuals are so poorly written. Each line makes only about 16 kg/hour of tofu. The equipment is made illegally in

Russia with no supervision or license from ProSoya Inc., Raj Gupta's company in Canada.

Soya-Ch produces plain tofu and five types of flavored or seasoned tofu (with raisins, dried apricots, caraway, sea tangle or laminaria *{konbu,* a type of sea vegetable}, or salt). They call their tofu "soy cheese" and consumers buy it and use it like cheese. They typically slice it and serve it on bread; it is never pan-fried, deep-fried, sauteed, stir-fried, etc. It retails for about 30% less than dairy cheese–which is its most important selling point in Russia.

The company's total tofu production is about 15,000 kg/month; over 80% of this is plain tofu, which is sold in bulk to a dairy which uses the tofu as an extender for their low-fat dairy cheese. Of the remaining 20%: (1) About 30% is sold as plain tofu 125 gm packs; (2) About 50% is sold as flavored tofu (five flavors) in 125 gm packs; and (3) About 20% is sold as flavored soy cottage cheese dessert in 125 gm round cups.

To make the soy dessert: Place whole raisins or bits of pre-chopped dried apricots in the bottom of a curding vat. Run hot soymilk into the vat in three stages, adding one-third of the total nigari coagulant at each stage. The soymilk flowing into the vat stirs both the fruits and the nigari; no paddle is used for stirring. The fruit distributes itself evenly distributed throughout the curds–naturally! While the soymilk is finishing its coagulation, line a second perforated vat with a cloth pressing sack. Ladle the curd-fruit mixture into the pressing sack; whey will begin to drain out through the holes in the vat. When the sack (and vat) is full, lift the sack out of the barrel and hang it in a cold place over a drain or basin to catch the dripping whey. For best results, hang the sack in a walk-in cooler with a strong fan to hasten cooling and extend the shelf-life of the finished product. Package the fruit-sweetened curds in 125 mg cups. Serve cold as a ready-to-eat dessert. No added sweetener is needed. Ted found this latter product to be very innovative and interesting.

The company sells its tofu at all 42 supermarkets in Cheboksary, and they deliver it in their own refrigerated trucks. They do not make any soymilk for sale as such because of the expense of packaging; however they may sell a small amount in bulk. Financially, they are doing quite well.

It was very easy for Ted to show them how to make tofu correctly, and how to make many additional new products such as flavored tofu, soy yogurt, and soymilk. After Ted's visit, they plan to make soy yogurt using a 140 liter/hour yogurt plant from Israel. They expect to be able to make and sell soy yogurt for 25% less than dairy yogurt. Ted advised them to price the soy yogurt at the same price as dairy yogurt, but to periodically put it on sale at 20-25% off–a Western marketing trick! When they introduce the product, or introduce it to a new store or chain, have it on sale for one month. Then, 2-3 times per year, for one month at a time, have it on sale for 25% off; at those times, try to have demo in as many stores or chains as possible. When introducing new flavors, have the product on sale.

One big problem in Russia is the Sanitation Board. Each new product a company makes must get a permit from this department, but only after they have started to make the product. The product is then sent to Moscow where a bureaucrat must give it his stamp. "The one thing they seem to like most in Russia is stamps." Address: TAN Industries, Inc., 49 Stevenson St., Suite 1075, San Francisco, California 94105-2975; 660 Vischer Ct., Sonoma, CA 95476. Phone: 415-495-2870.

2754. Buker, Robert J. 2001. Edamame soybeans from Vancouver to Kampala. In: T. Lumpkin, ed. 2001. Second International Vegetable Soybean Conference. Pullman, Washington: Washington State University. 202 p. See p. 27-28.

• ***Summary:*** Dr. Al Probst, USDA soybean breeder at Purdue Univ., introduced the author to "soybeans as a green vegetable" when he was in graduate school. When he served steamed grain varieties to his children, they greatly enjoyed opening the salted pods and eating the beans with their fingers. He soon learned that they were nutritious, good tasting, and fun to eat. After 23 years of heading a program that bred grain type soybean, he resigned in 1984 and moved from Indiana to his ancestral home in Vancouver, Washington.

He then worked with USAID and introduced edamame soybeans to Uganda (where they were well accepted), Somalia and Zimbabwe. He obtained these soybeans from S. Shanmugasundaram of AVRDC. Later he started an edamame selection program in Vancouver, Washington. He also grew one variety (Buker's Favorite) in Belize and Oregon.

In 1998 he had two short-term assignments in Turkmenistan. Buker's Favorite was among the varieties planted in this cotton growing economy. This spring he received reports that this variety has been well received and production has expanded.

Buker returned to Uganda in Dec. 1998 and again in Dec. 2000. On both assignments he gave his hosts samples of his soybean variety and prepared local grain varieties as a grain vegetable snack. "In Kampala, I persuaded the hotel chef to steam some green grain soybean pods for me and invited a reporter and invited a reporter from the major newspaper to join me for a snack. He prepared a nice article for his paper on the benefits of eating soybeans as a green vegetable."

"In summary green vegetable soybeans can improve the human diet here and in the developing world. We must remember that in the developing world it is the small children that need a higher protein diet. Edamame soybeans satisfy this dietary requirement and taste good as well as

being fun to eat." Address: 5808 NW Alki Rd. Vancouver, Washington. bobbuker@spiritone.com. Phone: 503-630-5984.

2755. Li, Thomas S.C. 2001. Vegetable soybean development in Canada. In: T. Lumpkin, ed. 2001. Second International Vegetable Soybean Conference. Pullman, Washington: Washington State University. 202 p. See p. 83-86. [7 ref]
• ***Summary:*** Contents: Introduction and methods. Results. Summary. The term "vegetable soybean" means edamame, which is a relatively new crop in Canada. The number of heat units required for vegetable soybeans is not a large as for grain soybeans since vegetable soybeans are harvested before the seeds reach maturity; thus they can be grown in most provinces in Canada. Canada has recently started a breeding program specially for vegetable soybeans, due to increased demand. In 1998 and 1999 four varieties (Maple Glen, Apache, Karikachi, and Tohya) were tested at the Pacific Agri-Food Research Centre, Summerland, British Columbia. Maple Glen is a grain variety with smaller seeds than the other three, which are vegetable varieties. "Maple Glen and Apache were developed at the Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, Ottawa, Ontario. Seeds of both Karikachi and Tohya were obtained from Japan (Tokita Seed Co. Ltd., Nakagawa, Omiya-shi, Saitama-ken, Japan 330). Large beans from both Tohya and Karikachi have been especially selected for relatively early production.

Vegetable soybeans should be harvested at the R6 stage. A maturity indexing system was adopted by using corn heat units (CHU) to determine the suitability of different geographical regions. The CHU required for to reach the R6 stage was found to range from 2100 for Maple Glen to between 2200 and 2300 for Karikachi and Tohya. "These CHU requirements should allow most of the regions in Canada to grow vegetable soybean as a new alternative crop."

Table 1 gives height to bottom pod, height of plant, yield (gm per plant), seed to pod index, and fresh bean weight (gm per 100 seeds). Address: Agriculture and Agri-Food Canada, Pacific Agri-Food Research Centre, Summerland, British Columbia, Canada V0H 1Z0. lit@em.agr.ca.

2756. *Ontario Soybean Growers Newsletter.*2001. Biodiesel demonstration plant "up and running" in Ontario Aug. p. 5.
• ***Summary:*** Ontario Soybean Growers (OSG) "continues to actively pursue the commercialization of biodiesel fuel in Canada as a value added market for soybean oil." Recently "BIOX Corporation started its first production of biodiesel at its Oakville, Ontario, demonstration plant. The plant will be instrumental in perfecting a new process for producing biodiesel..." A photo shows: Dr. David Boocock, developer of BIOX's production process. Tim Haig, President and CEO of BIOX, plus representatives of OSG at the BIOX facility. Address: Chatham, ONT, Canada N7M 5L8.

2757. *Ontario Soybean Growers Newsletter.*2001. Profiles: New uses in the spotlight. Aug. p. 11.
• ***Summary:*** Focuses on products developed in the United States, such as hydraulic fluid, ultimate odor eater, truck bed liners, soy hydraulic fluids, soy-based ink, soy hand cleaners, soy furniture, bulk soy wax, Environ (soy building material), roasted soy nuts, general soy products. Gives the website URL for about half of these products. Address: Chatham, ONT, Canada N7M 5L8.

2758. *Ontario Soybean Growers Newsletter.*2001. Market scan [Total soybean imports and total foods soybean imports to selected Asian countries]. Aug. p. 12.
• ***Summary:*** A table shows total soybean imports / total foods soybean imports to selected Asian countries. All figures are in tonnes (metric tons):

Japan 4,800,000 / 980,000.
Hong Kong 35,000 / 35,000.
Singapore 26,000 / 26,000.
Malaysia 200,000 / 70,000.
Taiwan 2,400,000 / 350,000.
Indonesia 600,000 / 350,000.
South Korea 1,200,000 / 200,000.
Philippines: 100,000 / 28,000.
Thailand 900,000 / 100,000.
Total for these countries: 10,261,000 / 2,139,000.

"Canada has been exporting soybeans to Asia for 30 years."

Source: Statistics Canada, Cereal and Oilseeds Review Series.

Note: Statistics for China and Vietnam are not available. Address: Chatham, ONT, Canada N7M 5L8.

2759. Shurtleff, William. 2001. On the English-language etymology of "green vegetable soybeans," "edamamé," "vegetable-type soybeans," and "food-grade soybeans". In: T. Lumpkin, ed. 2001. Second International Vegetable Soybean Conference. Pullman, Washington: Washington State University. 202 p. See p. 179-181.
• ***Summary:*** "After studying these terminology questions for more than 25 years, Soyfoods Center would like to see the following terms adopted: (1) Green vegetable soybeans: Vegetable-type soybeans picked green and cooked until tender. They may be served either in the pods (as edamamé) or shelled. This term has a 50-year history of use in the professional literature. (2) Edamamé: Green vegetable soybeans sold, cooked, and served in the pods. For shelled green vegetable soybeans we favor the term 'shelled edamamé.' In Japan, the latter are just starting to become available in the produce section of grocery stores, sold

refrigerated (not frozen), typically in rigid containers with clear plastic tops and called either *mukimi edamamé* or *edamamé no mukimi* or *mukimame. Mukimi* means 'shelled' and *mukimame* means 'shelled beans.' (3) Vegetable-type soybeans: Certain varieties of large-seeded soybeans (most with Japanese pedigrees and clear hilums) recognized for their good flavor and texture when used as food–either as green vegetable soybeans or tofu, soymilk, etc. This term has a 50-year history of use in the professional literature. In Japan, such seeds are called *edamamé no tane* ('edamame seeds'). They are widely available in Japan in the spring in typical paper seed packets at grocery stores next to the produce department or the cut-flower department.

"An alternative, simpler approach (now used by the American media) would be to call both (1) and (2) above 'edamame' then to call the shelled ones 'shelled edamame.'

"Unfortunately each of these three approaches and terms has its disadvantages. (1) Green vegetable soybeans is a very descriptive term, but it is quite long and unfamiliar to most Americans. Since 'shelled green vegetable soybeans' is much too long, 'shelled edamame' (a term now starting to be used in Japan) or 'green shelled soybeans' might be better. (2) Edamame is nice and short, and widely used in the American press since the late 1990s. But it is difficult for English speakers to pronounce correctly if there is no accent on the last letter, yet no English words have accents, and the keyboard character (é) only exists in special foreign-language character sets, which are a nuisance to use frequently. (3) The term 'vegetable-type soybeans' is easy to confuse with 'green vegetable soybeans.' Moreover, the term sounds strange when used to describe large-seeded (often clear hilum) soybean varieties preferred for making tofu or soymilk. In addition, most Americans have never heard of 'vegetable-type soybeans.' The term 'food-grade soybeans,' widely used in Canada since the 1980s, has its own problems. First, it is often used to refer to all soybean varieties used to make foods, including small-seed varieties used to make natto and soy sprouts. Second, all soybeans can be considered 'food grade.'" Address: Soyfoods Center, Lafayette, California, USA.

2760. McCloy, Johanna. 2001. Work with veggie dogs and the Soy Happy! campaign (Interview). *SoyaScan Notes.* Sept. 17, and April 21, 2003. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Johanna (pronounced yo-HAN-nuh, after her Icelandic grandmother) spent much of her early life overseas, including Spain (7 years), India (2 years), Japan (Tokyo, 6 years from 1975 to 1981), and Venezuela (one year). She moved to the USA to attend Duke University (Durham, North Carolina), and graduated with a degree in Comparative Area Studies and a minor in Anthropology. She speaks Spanish (her first language) and "manageable" Japanese. During the summer of 1985, she studied intensive Japanese at ICU (International Christian University) in Tokyo.

During her six years in Tokyo, Johanna got her first taste for acting; she performed in plays and landed roles in commercials, TV and movies. In 1989 she moved to Los Angeles after being accepted to Sanford Meisner's acting class. Much of her income is from acting and people recognize her from her role as Ensign Calloway in *Star Trek: The Next Generation*, or from her numerous commercials.

In 1989 she became a vegetarian, and in 1999 a vegan.

In about March 2000, while at a Dodgers Game in Los Angeles, when she realized there was nothing in the stadium for her to eat–nothing! So the next day she called the concession manager at the stadium. First she pointed out that no veggie hot dogs were available in the stadium, then added that she was very surprised to find at that, even among the five sandwiches at the Subway stand (Subway is a company known for offering vegetarian alternatives), there were no meatless subs. So asked him to consider having something vegetarian there. The guy said, that the issue of the veggie dogs was a long-term problem that he would be willing to discuss, but as for the meatless Subway sandwich, he would be glad to contact the stand and have it available next week. And the next week they were offering vegetarian food–just like that. Johanna realized that all she had to do was ask! Note: Not until June 2001 did Dodgers stadium started offering veggie dogs–one of the last 3-4 major league parks to do so.

For years, Johanna had been a member of PETA (People for the Ethical Treatment of Animals). In one of their newsletters from a previous year, PETA had suggested that readers who were baseball fans contact their local baseball park for menu information. So she called PETA, told them that she had just called her own ballpark, mentioned the previous newsletter about baseball parks, and asked PETA if they happened to have current menu information from baseball parks because she was curious to know if any of them presently sold veggie dogs–so she could tell her contact at Dodgers' stadium. They said they had a list, but it was very old and needed to be updated. She offered to call all the ballparks to update it if they would fax her a copy. The next day she was on the phone updating the list. She personally called the concession manager at every major league ballpark, introduced herself, encouraged them to start selling veggie dogs, then asked them what their vegetarian menu offerings were.

Then someone advised her to create a Website and post the updated list on it–so many people could access it quickly and easily. She had never dealt with the Internet before, but her e-mail provider helped her to set up a very simple home page. Soon she had posted the upated list on her site. Her Venue Reference Guide contained, for every major league ballpark: Contact information, concession

company, current veggie menu offerings, and where the vegetarian foods are located in the ballpark.

In May 2000 an story about her work with vegetarian foods at baseball parks appeared on Vegesource.com–the most popular vegetarian resource website on the Internet. Almost immediately, many people started to visit Johanna's little Website–as shown by the counter on her home page–which soon hit 700 visitors. She also got a few e-mails and phone calls. Then, because of the great interest in this subject, Vegsource.com offered to host her Website. She soon came to value the power of the Internet. Her consumer advocacy campaign began to pick up steam. She e-mailed concession managers, told them of her activities and number of visitors, encouraged them to sell veggie dogs at baseball games, and offered to help them get started by putting them in touch with manufacturers so they could sample different brands. She explained that many vegetarian baseball fans, who now eat before to the game or bring their own food to the ballpark, were potential customers.

In April 2000 she single-handedly started the Soy Happy! campaign to get veggie hot dogs into major league ballparks. Since that time she has devoted herself so wholly to this, and became so completely immersed in the cause and the campaign, that she put her life–her quest for an income and a viable way of life–on "hold."

The first major league ballpark to sell veggie dogs was the San Francisco Giants in about 1989. The product was a vegan hot dog made by Yves in Canada, but the Giants only sold them for about two years at a "Health Stand"–big mistake. Johanna has heard that the Giants did this because the concession manager's daughter was a vegetarian and she was insistent; moreover her dad had had a heart problem that year, and as a result decided to try the meatless hot dogs.

The next team was the Norfolk Tides, a AAA baseball team in Virginia–largely due to the efforts of PETA, which is headquartered in Norfolk. PETA agreed to buy a billboard ad in the stadium if the team would sell veggie dogs there. The first major ballpark to accept her idea was the Chicago White Sox, starting in April 2000. She was surprised and delighted.

In April 2001 she had a video (8 minutes, color) made about the Soy Happy! It was set at the Genesis Awards program. She mailed copy of the video of the video, with a cover letter, to every major-league ballpark. At that time only one major league park was selling veggie dogs. In July 2001 she added an appendix to the video and announced that seven teams were now selling veggie dogs.

Also in April 2001 she developed and launched the Soy Happy! website has been very instrumental in this campaign on EarthLink. Within a month, VegSource, the most frequently visited vegetarian site on the Internet, offered to host her website, make it even more professional, and pay expenses. Jeff Nelson of VegSource has been her "godfather." VegSource also hosts many other vegetarian and animal rights sites.

During the past year Johanna has met and worked with many concession managers at baseball parks. Most major league baseball teams have their own concession stands in addition to those they contract with to come into the ballpark. Johanna believes strongly that veggie dogs should be sold along with the other foods and not in some separate place, such as a "Health Stand." Today they are sold at only a few stands and those are often on a test-run basis, usually not advertised, and often not conveniently located–a formula for failure. The place where Johanna has learned the most about concession food is at Dodgers' stadium in Los Angeles. Their hot dog maker, Farmer John, is a major force at that stadium since it was first created in Los Angeles. Farmer John provides a large portion of the marketing expense and budget for the stadium through their sponsorship. On the back of every Dodger ticket sold is a Farmer John logo.

Since the Hain Celestial Group recently purchased Yves Veggie Cuisine (of Canada), a major source of veggie dogs, Johanna plans to reduce her work with Soy Happy! unless she can work as a paid consultant. However she plans to continue developing and maintaining the website. Acting is a possibility, but it hasn't been her principal focus for a long time. So she is pondering her future, which may include a move to northern California. Her mother lives in Walnut Creek, and she is attracted to that part of the world. She likes to write and is considering writing a book about growing up overseas.

An essay about her path to becoming a vegetarian will appear in the book *Voices from the Garden* (Lantern Books, fall 2001). Address: P.O. Box 42152, Los Angeles, California 90042. Phone: 323-363-7226.

2761. Soy Happy! 2001. SoyHappy.org. Let's get veggie dogs in major league ball parks (Website printout–part). http://www.soyhappy.org. Printed Sept. 17.
• ***Summary:*** Contents: Home page. 1. About the campaign (5 p.). 2. Veggie dog info. 3. Ballpark reference guide. 4. Soy Happy news. 5. Caps and patches. 6. Founder bio. 7. Links. 8. Contact us.

Dates when ballparks started selling veggie dogs: Norfolk Tides (before April 2000). Chicago White Sox (April 2001). Seattle Mariners (April 2001). Florida Marlins (April 2001). Montreal Expos (April 2001). Oakland A's (May 2001). Los Angeles Dodgers (June 2001). Toronto Blue Jays (June 2001). Most ballparks are selling Morningstar (Kellogg's) Veggie Dogs–which are vegetarian but not vegan. The Los Angeles Dodgers and a few others are selling Yves Veggie Cuisine's The Good Dog–which are vegan, kosher, and non-GMO, or Lightlife Foods' veggie dogs.

On page 1 of the home page is a color photo of Johanna McCloy, the campaign's founder. Address: P.O. Box 42152, Los Angeles, California 90042. Phone: 323-363-7226.

2762. Carter, Rachel; Kistner, Stephanie. eds. 2001. The soy alternative. Vancouver, BC, Canada: Whitecap Books Ltd. 240 p. Illust. (color). Index. 26 cm.
• ***Summary:*** This is an attractive book, with a full-color photo on almost every other page. However it is edited by a team of people who apparently don't know much about the subject, since it contains many factual errors. It has no real author and many publishers, the main one being Murdoch Books, a division of Murdoch Magazines Pty. Ltd. (Sydney, Australia).

Contents: The soy story. Glossary of ingredients. Soy for breakfast. Breakfast in a glass. Soy for lunch. Soy for Sunday lunch. Soy for vegetarians. Note: The rest of the book is not vegetarian, containing recipes for beef, lamb, chicken, pork, etc. Soy for dinner. Soy for parties. Soy for dessert. Soy at teatime. Cookery terms. Address: 351 Lynn Ave., North Vancouver, BC, Canada V7J 2C4.

2763. AGP–Ag Processing Inc a cooperative. 2001. Annual report. 12700 West Dodge Road, P.O. Box 2047, Omaha, Nebraska 68103-2047. 28 + 20 p. 28 cm.
• ***Summary:*** Net sales for 2001 (year ended Aug. 31) were $1,788.716 million, up 9.0% from $1,640,838 million (revised downward from $1,961,736 million) in 2000. Earnings from continuing operations (before income taxes): $46.038 million, up 2.70 fold from the $17.069 million (revised downward from $20.908 million) in 2000.

This year AGP has a new CEO, Martin P. Reagan. "In fiscal 2001, AGP began to divest its U.S. and Caribbean feed operations, its swine business, and its Sherman, Texas, refinery, ending its relationship with Archer Daniels Midland (ADM) in these businesses." "Through a transaction with ADM in fiscal 2001, AGP divested itself of Consolidated Nutrition which was jointly (50-50) owned by the two companies. In a related transaction, AGP acquired ADM's share of Masterfeeds, the Canadian feed operation that had been equally owned by the two companies." Also an "expansion of the Soybean Component Premium Program [to include protein], and an increase in bio-fuel visibility and growth." AminoPlus is "AGP's high performance dairy supplement" [bypass soy protein].

Contains color photos of (1) Leiting and Lindsay. (4) The board of directors. (5) Management staff. Contains many color photos. AGP now has a website listed on the rear cover: www.agp.com. Address: Omaha, Nebraska. Phone: (402) 496-7809.

2764. **Product Name:** [Soy & Rice Miso].
**Foreign Name:** Miso de Soya et de Riz.
**Manufacturer's Name:** Les Aliments Massawippi.
**Manufacturer's Address:** 4530 Chemin Capelton, North Hatley, Quebec, Canada J0B 2C0. Phone: 819-842-2264.
**Date of Introduction:** 2001. October.
**Ingredients:** Organic soybeans, organic rice, salt, *Aspergillus oryzae*, natural spring water.
**Wt/Vol., Packaging, Price:** 200 gm, 500 gm, or 2 kg plastic tubs.
**How Stored:** Refrigerated.
**New Product–Documentation:** Elwell, Christian. 2001. "Miso more than food: Life! Healing in Rwanda." *River Currents: News from South River Miso Company* (Conway, Massachusetts). Fall/Winter. p. 2. Nov.

Talk with Gilbert Boulay. 2002. Nov. 24. Their miso is somewhere between a red miso and a light yellow miso. They worked for 6 months adjusting the proportions of ingredients so that, when dissolved in warm water, the broth tasted as much as possible like chicken broth / soup; it is not pasteurized. It was first presented at expos and shows in Oct. 2001 and was first sold commercially that same month; it was first distributed in Dec. 2001.

2765. *Ontario Soybean Growers Newsletter.*2001. Biodiesel promoted across Ontario. Oct. p. 5.
• ***Summary:*** "In an effort to help raise the awareness and demonstrate the benefits of biodiesel fuel, the OSG recently teamed up with Ontario Agri-Food Technologies (OAFT) and Biox Corporation on some promotional activities. These promotions included a display and demonstration of biodiesel fuel at both the Canadian Outdoor Farm Show in Woodstock, Ontario on September 11-13, 2001 and the Rural Expo and International Plowing Match on September 18, 2001. Both of these venues provided an excellent opportunity to speak with the public and politicians about the many benefits of biodiesel to the environment, public health, agriculture and rural development. Other biodiesel promotions are planned in Toronto in conjunction with Agriculture Week in October.

"In addition to these activities, the OSG also furthered the biodiesel agenda by making a presentation before the Ontario Government's Select Committee on Alternative Fuel Source. This multi-party committee is touring the province consulting with various stakeholders regarding the development of energy alternatives to fossil fuels. The OSG presented a brief outlining the benefits and opportunities associated with biodiesel in Ontario and recommended that biodiesel should be granted tax parity with other alternative fuels in Ontario." Address: Chatham, ONT, Canada N7M 5L8.

2766. *Ontario Soybean Growers Newsletter.*2001. Profiles: Kevin Muxlow, Executive Director of Grain Growers of Canada. Oct. p. 7.
• ***Summary:*** "Grains and oilseeds organizations across Canada have talked about it for years–the need to lobby for

changes in federal policies with `one voice.' With the recent formation of Grain Growers of Canada, this need is being met.

"Grain Growers of Canada (GGC) is a coalition of 11 different commodity groups from across the country, with Ontario Soybean Growers being a founding member. Other members include the Alberta Barley Commission, the Alberta Winter Wheat Producers' Commission, the Atlantic Grains Council,..."

"In all, the group encompasses some 80,000 grain and oilseed farms worth an estimated $10 billion in economic activity, including exports, employment and benefits to the rural economy.

"The goal of GGC is to represent all Canadian grain producers and to maximize opportunities for farmers to pursue their interests within a competitive and open marketplace. The challenge is to provide a balanced and united approach, as opposed to focusing on a particular set of issues facing one group. 'We want to help forge a policy environment where all commodities and the producers who grow them can be successful worldwide,' says Kevin Muxlow, Executive Director (and sole staff member) of GGC. To meet its goal, Grain Growers of Canada has identified several areas of priority for the group.

"One main activity this year, relevant across Canada, has been to emphasize the need for equity in income support provided for Canadian grain and oilseed farmers compared to those for competing farmers in the United States. The GGC has made several submissions to the Canadian government, seeking new or revised safety net programs that better meet the needs of grain and oilseed producers,..."

"Another area of focus for GGC is market access and trade."

"One challenge with a possible opportunity for farmers is finding ways for crop farmers to benefit from carbon sinks and credits as part of Canada's strategy to meet climate change quotas."

A portrait photo shows Kevin Muxlow. Address: Chatham, ONT, Canada N7M 5L8.

2767. *Ontario Soybean Growers Newsletter.*2001. Market scan [Canadian exports and identity preserved (IP) soybeans]. Oct. p. 8.

• ***Summary:*** Our industry has now moved into a higher plateau, as Canada's food-grade soybean customers will have new confidence in their purchases with the recent launch of the National Identity Preservation Standard. The standard is a minimum guideline that outlines identity preservation (IP) procedures for all stages of production from growing to processing.

"The Canadian soybean industry has been producing food grade soybeans for over 30 years and running IP programs for over 15 years. 'Our customers already know we have the infrastructure and skills for sophisticated IP programs,' says Michael Loh, Chair of CSEA. 'This standard will take our industry to the next level.' Canadian soybean exports have increased dramatically over the past few years, from 468,000 tonnes in the 1996/97 crop year, to 946,000 tonnes in 1999/2000.

"Identity preservation is important for food grade soybean production because Canada's public and private breeding programs have developed superior soybean varieties. These varieties, with traits such as large seed size and elevated proteins and sugars, have helped the Canadian soybean industry capture niche markets overseas. These customers want assurances that they are receiving the highest quality product. This national standard will help give our food grade soybean customers an additional level of comfort with our ability to segregate individual soybean varieties.

"The Canadian Grain Commission will be the third party certifying body for the standard. They will conduct both a `desk audit' of processors' IP procedures manuals, as well as physical audits of their facilities. 'IP programs are the way of the future for agricultural production. We see this standard as an evolving process and will be making changes to the standard as new technologies become available,' says Wendy Jahn of OMAFRA, who led the committee that drafted the standard."

An illustration shows the "I.P. Identity Preserved" logo of the Canadian Soybean Export Association. Address: Chatham, ONT, Canada N7M 5L8.

2768. Watanabe, Koichi. 2001. Re: History of La Soyarie Inc. and list of current products. Letter to William Shurtleff at Soyfoods Center, Nov. 7. 5 p. Typed, with signature on letterhead. [Eng; Fre]

• ***Summary:*** Each page, except the cover letter, has a color heading and is written in two columns, the left one in French, the right one in English. "About us: La Soyarie produces many food products with soya: Tofu (firm, regular, silk), Tofu burger, Soy Nuts, Tofu Nuggets, Vegetarian Pate. We also distribute other products under the following brand names: Yves Veggie Cuisine, Fontaine Sante Foods Ltd., Nutrisoya, Noble Bean. Address, phone, and fax numbers." Mme. Jeanne d'Arc d'Astous is chief administrator.

"Company history: From very modest beginnings, La Soyarie produced its first Tofu in 1978, right in our founder's [Koichi Watanabe's] home kitchen. This product was supplied only to small local health food stores and friends.

"In 1979, we moved into our first real production facility at 25 St. Etienne St., Hull (Quebec). During this period, our production consisted of only 7 batches of tofu a week. Our company had 20 customers, and produced bulk tofu blocks for total sales of $1600 a week.

"La Soyarie was incorporated on the 31st of March, 1982.

"In 1823, La Soyarie Inc. launched new product lines derived from traditional Japanese recipes, and made with tofu: the burgers and nuggets.

"On October, 1st, 1989, the business and offices moved to a brand new location, with 6000 square feet, at 94 Adrien-Robert St. in Hull. From then, the company began to prosper and grow rapidly. We now own the building and use all of its space that is 12000 square feet.

"Today, La Soyarie contracts 13 distributors that serve the regions of Montreal, Quebec and Toronto. We sell to some supermarkets chains and we supply 'Fontaine Sante Foods Ltd', on a weekly basis, for them to make their tofu based products.

"We serve more than 70 other businesses in the Ottawa region: Supermarkets, natural food stores, and some restaurants.

"We use more than 400,000 kg of organically grown Canadian soya beans per year.

"We currently employ 24 persons.

"The name for our company, 'La Soyarie' was selected from the entries in a 'name the business' contest. The winner received a year's supply of tofu.

"The logo represents a soya leaf."

A 1-page list of products shows that the company makes the following: Tofu–Regular water pack, 500 gm. Tofu–Regular vacuum pack, 454 gm. Tofu–Herb vacuum pack, 454 gm. Tofu–Vegetable vacuum pack, 454 gm. Tofu–Silk water pack, 500 gm. Tofu burger fried 300 gm. Miso burger fried 300 gm. Teriyaki burger fried 300 gm. Ganmo burger fried 300 gm. Tofu burger baked 280 gm. Miso burger baked 280 gm. Teriyaki burger baked 280 gm. Ganmo burger baked 280 gm. Imperial burger 150 gm. Oriental burger 150 gm. Nut burger 300 gm (no soya). Pinto burger 300 gm (no soya). Regular tofu nuggets 150 gm. BBQ tofu nuggets 150 gm. Soynuts 250 gm (regular, BBQ, plain, no salt). Tofu cutlets (150 gm, or 300 gm). Vege pate 220 gm (yeast free, no soya). Address: President & plant manager, 94 Adrien-Robert St., Hull, Quebec, Canada J8Y 3S2. Phone: (819) 777-6716.

2769. Bond, Jane Zavitz. 2001. Recollections of Charles Zavitz (Interview). *SoyaScan Notes.* Nov. 15. Conducted by William Shurtleff of Soyfoods Center. [1 ref]

• ***Summary:*** Jane married a Zavitz and is a very distant cousin of James R. Zavitz. Jane's husband's grandfather and Charles Zavitz were double first cousins; the mothers were sisters and the fathers were brothers. "They were such interesting people." Jane's son-in-law has an organic farm in Ontario; he farms with Suffolk draft horses (instead of farm machines) and tries not to use petroleum if he can help it. Jane knows James R. Zavitz, who lives in Elderton, Ontario, is a retired officer from the Royal Canadian Mounted Police. Phone: 519-666-1512.

A building at the University of Guelph, Ontario, that was the field hut building named for Charles Zavitz. The university was planning to tear it down, but the students protested because it was historic, so they collected the money, renovated it, and named it after Prof. Zavitz. It is now the best fine arts building at any university in Canada.

Jane is sure that James will have a portrait photo of Dr. Zavitz, as will the archives at the University of Ontario. Jane has a lovely but small family photo taken when Charles was a younger boy; his father and mother are shown clearly. She also has a large photo showing the same family as adults. She will loan both to Soyfoods Center.

Jane is chair of the Canadian Friends Historical Association. She is working on a Canadian Quaker Biography file, and would like to know more about Charles Zavitz and specially his impact on agricultural history in Canada. She believes that Quakers have not been given the credit they deserve in many fields. She is also the archivist for the Canadian Yearly Meeting; keeping archives is a Quaker practice. She founded the archive, which contains records of how the Zavitz family (from Alsace-Lorraine) came into Canada from Buck's County, Pennsylvania. Then from Niagara, to Lobo, where he grew up around Coldstream. Charles' father wrote this account at Charles' home in Guelph when he was a very elderly man. Jane has lots of genealogical information on Charles Zavitz. Many of his ancestors were farmers and millers–so they were interested in grain, just like Prof. Zavitz.

A small handwritten notebook kept by Daniel Zavitz (1821-1904), father of Charles Zavitz (1863-1942) has been newly discovered. As Jane recalls, it shows that Daniel was growing soybeans in Ontario in the 1850s; unfortunately she has been unable to find the notebook again, so she can't check or be sure exactly what it says about soybeans. Daniel had a large seed grain business. This notebook was given to Jane, who is curator of the Quaker Archives at Pickering College (Newmarket, ON L3Y 4X2 Canada), by Perry Zavitz, who was born in 1928 and is still living. Perry is the son of Harold Zavitz, who was the son of Edgar Merritt Zavitz (who lived in Coldstream), who was the brother of Charles Zavitz.

Prof. Zavitz, who was a pacifist, helped to found the Canadian Friends Service Committee, and he was the first chairman. And he was clerk of the Genessee Yearly Meeting, which as one of the three yearly meetings.

Prof. Zavitz wrote a book of his spiritual thoughts, had it printed on lovely paper and bound; at Christmas one year he gave them to many friends, relatives, and fellow Quakers / Friends.

"When you see what he managed to accomplish in the agricultural field, you wonder how he had any time to do anything else." The agricultural tie to Quakerism is a very strong one. The northwest apple industry was originally Quaker, and a lot of California orange and other groves

were Quaker. Quakers played major pioneering roles at Cornell Univ., Iowa State College, and Swarthmore.

Jane will send a packet of materials related to Prof. Charles Zavitz to Soyfoods Center. Address: R.R. 5, St. Thomas (near London), ON N5P 3S9 Canada. Phone: 519-775-2463.

2770. Zavitz, James R. 2001. Recollections of Prof. Charles A. Zavitz (1863-1942), soybean pioneer in Canada (Interview). *SoyaScan Notes.* Nov. 15. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** James R. Zavitz is the grandson of Prof. Charles A. Zavitz, whom he knew personally for many years. From the time he was age 6 until he was age 18 he used to spend 2 months of every summer holiday with his grandparents in the same house where he now lives. Thus, James and his wife now live in the house formerly occupied by Prof. Zavitz and his wife. When Prof. Zavitz retired from the Ontario Agricultural College (OAC) in 1927, he moved to the house where James now lives. Charles bought the place in 1913 as a retirement home; it's only half a mile from the house in which he was born at Coldstream. For the first year after Charles moved into the house, there was no electricity. Then in 1928 hydroelectric power first became available there, so Charles made several changes to upgrade the house in order to accommodate the power. Charles and his wife traveled to St. Petersburg, Florida, during the cold months every year; they left a little before December and returned in about April–until about 2 years before he died; he had some pulmonary trouble. Each year they sent Charles' family a 25-lb bag of pecans. At his new home in Canada, Prof. Zavitz continued his agricultural experiments, but more as a hobby to keep abreast of things. James and Charles had a deal that if James worked with him in his experimental plots at home during the morning, he could have the afternoon off to go to the swimming hole. In addition, each summer they would have a different theme. For example, one summer it was: "If you start right and keep right, you'll end up right." They would explore and enlarge on this theme during the summer. He was quite a teacher, a very kind man with a quiet sense of humor; he never swore. "He was not one for self aggrandisement. He was just a fairly wonderful person."

Two years ago, for the 125th anniversary of the University of Guelph, he was awarded an honorary doctor of science. They selected Prof. Zavitz as the one person who had the most to do with the advancement of the OAC. A statement accompanied the award and James has a copy of it.

Charles' two older brothers founded a newspaper for Canadian Quakers titled *The Canadian Friend;* they published it for 22-23 years, then it was folded into the *Friends Intelligencer* from Philadelphia. Jane Zavitz Bond has many copies of that newspaper, which James donated to her.

James has just finished writing an autobiography (265 pages) at the request of his children. About 10 years ago Gil Stelter, an English professor from the University of Guelph, was writing such a biography of Prof. Zavitz and James worked with him quite closely on it.

Charles Zavitz had only one child, Raymond Wilson Zavitz (born 1894), who was James' father. Raymond, in turn, had three sons, Robert, James, and John, in that order. James has one son and two daughters. James' younger brother has 4 sons, and his elder brother has a son and a daughter. Of all Prof. Zavitz's descendants, James is the most interested in his life and work. He has a file of nearly 8 inches of material about his grandfather's life, much of it personal and handwritten material. Prof. Zavitz was a great keeper of documents. This includes the 27-page biography that was written more than ten years ago by Dr. Gil Stelter, a professor of history at the University of Guelph.

In the mid- to late 1980s, James donated a collection of materials by and about Charles Zavitz to the University of Guelph. As far as he knows, they are presently located in the basement of the OAC library, next to Zavitz Hall. Included in his donation were four of Zavitz's diaries from his student days.

Prof. Zavitz was born on 25 Aug. 1863 at Coldstream, Lobo Township, Middlesex County, Ontario, Canada–about 16 miles west of London, Ontario. Zavitz is a very common surname in Germany and Switzerland. The family's immigrant ancestor, a miller by trade, arrived in Bucks County, Pennsylvania, in 1727, from Strasbourg, which was then part of France. After the American Revolution, because the Zavitzs were conscientious objectors (though not yet Quakers), they came to Canada with Loyalists (American colonials loyal to Britain), arriving in the Niagara area in 1784. After the War of 1812 they moved from Niagara westward to Lobo Township, which was half way between the Niagara and the Detroit frontiers during the War of 1812. Lobo Township no longer exists; in late 1997 it was amalgamated with two other townships now known as Middlesex Centre.

Prof. Zavitz suffered a stroke in the summer of 1941; it damaged his mind, so he didn't do much after that. He was bedridden until he died in March 1942. Address: R.R. 2, Ilderton, ON Canada N0M 2A0. Phone: 519-666-1512.

2771. Bennett, Ken; Stoneman, Don. 2001. Japanese soybean investment helps Ontario farmers access good Identity Preserved markets. *Better Farming (Ontario, Canada)* 3(9):20-29. Nov.

• ***Summary:*** Ontario farmers are moving from growing commodity soybeans for crushing to growing identity preserved (IP) soybeans for specialty uses, as for the Japanese market. This year's drought and small soybean

crop may actually speed the transition. Growth of Ontario soybean sales overseas continues to grow.

Eric Bosveld "is president of the new Agromart Processing Company Incorporated, located at Belton in western Ontario, between St. Marys and London." Agromart is a new food-grade soybean processing plant; it is also "the missing piece of equipment that has kept the Agromart Group from accessing good Identity Preserved (IP) markets for farmers.

"The plant also represents a significant investment by three Japanese companies who are paying half of the total cost, which is in excess of $1 million." The three, Marubeni Corp., Nisshin Oil Mills, and Nisshin Logistics, have made a substantial commitment to the Ontario soybean industry. This gives Ontario soybean growers and Agromart Processing to their markets. With this investment, the Japanese companies are no longer just a buyer; they are now a partner and investor, directly involved with the new processing company.

The other half of the costs has been paid by 12 Agromarts. This should make Ontario soybean farmers more profitable.

"That business model has already been proven by the success of Agromart Terminals Incorporated, which also operates at Belton and is 50 per cent owned by 14 of the Agromart joint ventures."

Peter Hannam, president of First Line Seeds Limited in Guelph, Ontario, "is considered by many to by many to be the guru of the Ontario soybean industry. He found the cold-tolerant soybean variety named Now. The story begins in 1962, when Hannam saw some soybeans "growing outside the crop science building at the University of Guelph, where he was about to receive an agricultural degree." At the time soybeans were considered to be a warm season crop, better suited to the climate of a few of Ontario's southwest counties. When a professor told Hannam that soybeans would not grow in cold climates, he took it as a challenge. In 1963 he began experimenting with a small plot of soybeans on the outskirts of Guelph. It took him 8 years of planting 5 or 10 acres of soybeans before he found a way that was profitable. "He worked closely with the University of Guelph to find a cold-tolerant bean, searching as far away as Sweden."

"In the early 1980s, he was involved with the Canadian Seed Growers Association and met a dozen other seed growers across Ontario who shared his vision. In 1982, they joined forces and First Line Seeds was born" in Guelph. Hannam wants to get out of "the commodity cycle" by developing proprietary soybean varieties and finding proprietary IP markets. He believes this will benefit farmers.

"In 1993 it was not legal to breed the Roundup Ready (R) gene into soybeans in Canada. "Nobody else in Ontario was interested in doing that." First Line was the first company to incorporate the Roundup Ready gene. "That innovation gave them a huge lead in the Roundup Ready market, enabling them to offer the first [genetically engineered soybean] varieties in Canada in 1997. It also made them an attractive partner for a large crop technology company, and in 1998 Monsanto bought a majority stake in First Line." The active minority shareholders make First Line "the most unusual seed company in the world." Hannam sees "a very strong future for the bio economy, growing specialized crops for specialized purposes." There will be many new uses. There is "a long way to go in utilizing the protein of soybeans to its fullest extent," says Hannam.

John Cowan is manager of the Hyland Seed Division of W.G. Thompson and Sons Ltd. He notes that "Hyland was the original IP crop producer in Ontario, producing corn for the Kellogg plant in London," Ontario, Canada, as early as 1977–the same year Hyland began its soybean breeding program.

In the crop year ending September 2000, Ontario soybean growers sold 2.34 million tonnes of soybeans. "Exports were more than 400,000 tonnes. While the definition of IP remains vague," Kim Cooper, marketing manager of the Ontario Soybean Board, says that, "strictly speaking, IP soybeans represent about 40 per cent" of the exports. Peter Hannam, president of First Line Seeds, thinks that about 75% of this year's crop will be "sold by variety."

2772. Fleming, Richard. 2001. Corporate profile: The roots of sustainability run deep for Sunrich. With farmers as shareholders, this Minnesota foods company has a deep regard for the land. *Natural Business LOHAS Journal* 2(4):45-46. Fall.

• ***Summary:*** The article begins: "It seems every time a physician or nutritionist urges Americans to eat healthier, soy is mentioned. Indeed, soy is a key ingredient in almost every health and fitness product on the shelf today, from energy bars to supplements for menopause symptoms. As western appreciation for the protein-packed soybean has grown, so has the success of the Sunrich Food Group, a whole grain and natural ingredients supplier that furnishes 40 percent of the soy milk in the U.S., sold under a variety of brand names. It's a market that the company says is growing at more than 30 percent annually." An estimated 60-70% of the company's revenues come from the soybean.

Sunrich was founded in Hope, Minnesota, in 1978. The company's shareholders are mainly Minnesota farmers. The company was founded on and specializes in identity-preserved (IP) grains. CEO Allan Routh notes that IP was the company's original capability, and that was how the company developed. Sunrich now also focuses on non-GMO, organic grains and grain products. An estimated 85% of the food ingredients the company produces are organically grown. From Japan, the destination of the company's first exports and still the source of about 25% of

revenues, Sunrich borrowed edamame soybeans, which are marketed under Sunrich's Hearty and Healthy brand.

Sunrich was acquired in 1999 by Stake Technology (STKL) of Norval, Ontario, Canada. Stake recycles industrial materials and markets clean pulping technologies. It was a good marriage, since both companies have a deep regard for the planet. Sunrich now produces about two-thirds of its parent company's revenues. Sunrich projects sales for calendar 2001 at $75 million, up 50% from 2000, due in part to the acquisition of two companies last year: Nordic Aseptic, a packaging company focusing on private label manufacturing, and NFD, which specializes in technical food ingredient processing and R&D. Today Sunrich has about 250 employees.

Color photos show: (1) Portrait of Allan Routh. (2) A clean field of soybeans in long, straight lines over low rolling hills. (3) Two hands cupping yellow soybeans against a background of yellow soybeans.

Note: Talk with SunRich. 2001. Nov. 6. The company name should be written "SunRich" not "Sunrich"–as it is throughout this article.

2773. Hain Celestial Group, Inc. (The). 2001. Annual report 2001. Melville, New York. 36 p. Nov. 28 cm.
• ***Summary:*** Net sales for the year ended 30 June 2001 were $412.880 million, up 2.3% from $403.543 million in 2000. Net income in 2001 was $23.589 million, way up from a loss of $17.097 million in 2000, and 74.5% higher than the previous net income high of $13.517 reached in 1999.

The company now markets 26 brands with over 1,500 different products. "We continue to bring new organic products to market, as well as foods and snacks free of genetically engineered ingredients (GEIs).

In June 2001 the company acquired Yves Veggie Cuisine in Vancouver, BC, Canada. This gives Hain a strong base for growing its Canada operations. Yves has been extremely successful in Canada and the U.S. with its refrigerated meat and cheese alternatives. Hain will soon launch many of its U.S. products under the Yves brand in Canada, and also introduce many new product categories (p. 2).

"Soy beverages continue to be the largest natural food grocery category, and Westsoy has increased its #1 leadership position in aseptic products by growing 9.5% in the last 12 months in the grocery channel alone. This has been at the expense of both long-standing competitors and new entrants... Westsoy expanded to new beverage varieties including soy-based shakes and smoothies, and new refrigerated Westsoy is gaining in both distribution and sales velocity. We now also have the distribution network in place to aggressively support and merchandise the refrigerated section of natural food stores and supermarkets" (p. 3).

Photos show: (1) Westsoy, all natural soymilk beverages (p. 12-13). (2) Yves all natural soy protein products, incl. Veggie Bologna Slices, Veggie Ground Round, Good Slice (cheese alternative), Good Dog (hot dog alternatives), and Canadian Veggie Bacon. (p. 14-15). Yves "continues to lead the North American fresh meat alternative category with exceptional growth in both U.S. and Canadian fiscal markets in fiscal 2001. Yves led category growth with the introduction of new 'Great Tasting' products... Using Yves' strong brand name and distribution network in Canada, we will roll out over 70 new products in the Canadian market in fiscal 2002."

Accompanying the annual report is a "Notice of Annual Meeting of Stockholders and Proxy Statement" (17 p.). Irwin Simon, the founder and CEO, age 43, had the following annual compensation: Salary: $460,000. Bonus: NA. Other compensation: $5,400. Andrew Jacobson, president of the company's Natural Products Group, earned a salary of $247,500. A color photo (p. 2) shows Irwin Simon pushing a shopping cart filled with Hain-Celestial products. Address: 58 South Service Road, Melville, New York 11747. Phone: 516-237-6200.

2774. *SoyaScan Notes.*2001. Chronology of major soy-related events and trends during 2001 (Overview). Dec. 31. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** April 12–Bill Bolduc, founder of Eden Foods and natural foods pioneer, dies in Southern California.

April 17–Martha Stewart, on her popular nationwide TV program *Living*, has a very positive segment on South River Miso Co.

April 18–Richard Rose, a soyfoods pioneer, sells Rella Good Cheese Co. to Tree of Life. He retains his company HempNut, Inc. in Santa Rosa, California. His Hempeh (hempseed tempeh) still contains soy.

May 11–The Kerry Group (of Wisconsin and Iowa) purchases Iowa Soy Specialties, LLC of Vinton, Iowa.

June 12–The Hain Celestial Group acquires Yves Veggie Cuisine (Vancouver, BC, Canada).

Aug. 24–Wildwood Natural Foods (Fairfax and Santa Cruz, California) and Midwest Harvest, Inc. (Grinnell, Iowa) merge to form Wildwood Harvest, Inc. Iowa Agricultural Finance Corporation (IAFC) invests $3.3 million in the new company, and the Iowa Farm Bureau Federation (IFBF) invests an additional $700,000. This investment will be used to build and equip a 20,000 square foot soyfoods plant in Grinnell and to remodel and equip another 20,000 square foot soyfoods plant in Watsonville, California.

Aug. 3–Bunge, in its initial public offering (IPO), raises $278 million by floating 23% of its shares on the New York Stock Exchange. Bunge his been a private grain trading company since it was founded in 1818 in the Netherlands by Johann Peter Gottlieb Bunge.

Sept.–SunRich's new soymilk plant in Wyoming starts production. By Nov. the plant is at full capacity and expansion begins.

Oct.–The Coca-Cola Co. acquires Odwalla, Inc. of California for $181 million. Odwalla has annual sales of about $130 million, mostly in fresh, refrigerated juices plus some delectable soy beverages.

Oct. 21–The U.S. National Organic Program and its standards take effect.

Nov. 4-7–Fourth International Symposium on the Role of Soy in Preventing and Treating Chronic Disease held at San Diego, California. General chairpersons and proceedings editors: Stephen Barnes and Mark Messina.

Dec. 10–The Hain Celestial Group, Inc. acquires Lima NV, the leading Belgian natural and organic foods manufacturer and marketer, and its Biomarché operations. Hain appoints Lima's Chairman, Philippe Woitrin, as Managing Director of Hail Celestial Europe. Lima is also a European pioneer in macrobiotic foods and soyfoods.

Dec. 11–Ralston Purina Co. (St. Louis, Missouri, a soy pioneer) is acquired by Nestle SA for $10.1 billion cash; on this date the deal is approved by the U.S. Federal Trade Commission. The new company is named Nestlé Purina. The merger brings together such household names as Ralston's Dog and Cat Chow and Nestle's Friskies cat food and Mighty Dog brands.

Dec. 24–The Federal Trade Commission approves the merger of Dean Foods and Suiza Foods Corp. (which owns 14% of Horizon Organic Dairy). A federal judge throws out White Wave's lawsuit arguing that White Wave has the right to buy back its own stock at the market price before the merger.

In 2001, for the first time in modern history, the USA lost the distinction of supplying more soybeans and soybean products (oil and meal) than all other countries combined. This year it supplied about 46% of the world's soybean exports. South America (mainly Brazil and Argentina) now supply more than 50%. Devalued currencies in Brazil (the *real)* and Argentina (the *peso),* plus the strong U.S. dollar, make it difficult for U.S. exporters to compete based solely on price. To compete in the future, U.S. growers must find a new strategy, which will focus on soybean quality.

2775. *SoyaScan Notes.*2001. Dramatic drop in soybean production in Ontario and Canada (Overview). Dec. 31. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Soybean production in Ontario province (which produces most of Canada's soybeans) fell dramatically in 2001 to 47 million bushels–only 55% as much as the 85 million produced in Ontario in the year 2000.

Not since 1990 (when production was 44.5 million bushels) has soybean production fallen so low in Ontario.

2776. *Canadian Soybean Bulletin (CSEA, Chatham, Ontario, Canada).*2001. New food grade soybean cultivars developed at Harrow. Fall. p. 2.
• ***Summary:*** New varieties developed at the GPCRC (Greenhouse and Processing Crops Research Centre) include AC Hime, AC Vin-Pro, AC X790P. Canada's exports of food grade soybeans to Japan have increased dramatically from 36,000 tonnes in 1995 to 75,000 tonnes in 1998, to 175,000 tonnes in 2000. Address: Canadian Soybean Export Assoc., P.O. Box 1199, Chatham, Ontario, Canada N7M 5L8. Phone: 519-352-7730.

2777. *Canadian Soybean Bulletin (CSEA, Chatham, Ontario, Canada).*2001. Canadian national soybean IP standard launched. Fall. p. 4.
• ***Summary:*** IP stands for "identity preserved." The Canadian soybean industry has been producing food grade soybeans for over 30 years and running IP programs for over 15 years.

Canadian exports have increased dramatically from 468,000 tonnes in the 1996/97 crop year, to 946,000 tonnes in the 1999/2000 crop year. Address: Canadian Soybean Export Assoc., P.O. Box 1199, Chatham, Ontario, Canada N7M 5L8. Phone: 519-352-7730.

2778. Dionne, Suzanne. 2001. Miso–More than food: Life. Quebec, Canada: Les Aliments Massawippi, Inc. 82 p. Illust. 22 cm. Spiral bound. [49 ref. Eng]
• ***Summary:*** Contents: Acknowledgements. About the author. Introduction. What is miso? The art of making miso. Exceptional nutritive qualities. Non-pasteurized miso: a living food. Miso, provider of physical well-being, healing and longevity agent. Recipes–Entrees. Broths and soups. Salads. Main dishes. Vegetables and side dishes. Sauces and vinaigrettes. Other useful recipes. Address: North Hatley, Quebec, J0B 2C0, Canada.

2779. Dionne, Suzanne. 2001. Le miso–plus qu'un aliment... la vie [Miso–More than food: Life]. Quebec, Canada: Les Aliments Massawippi, Inc. 82 p. Illust. 22 cm. Spiral bound. [49 ref. Fre]
• ***Summary:*** For contents, see the English-language edition. Address: North Hatley, Quebec, J0B 2C0, Canada.

2780. Loh, Michael. 2001. Message from the chairman. *Canadian Soybean Bulletin (CSEA, Chatham, Ontario, Canada)* Fall. p. 1.
• ***Summary:*** "Once again we are reaching out to you, our valued customers, with a regular export newsletter to update you on the happenings of the Canadian Soybean industry. We recently made some changes in the newsletter. We hope you find the revised format more enjoyable to read.

"Canada has been a major supplier of food grade soybeans for over 30 years–quite an achievement

considering that we account for less than 2% of world soybean production."

Note: This newsletter was previously published by the Ontario Soybean Growers at the same address. Address: Chairman, The Canadian Soybean Export Assoc., P.O. Box 1199, Chatham, Ontario, Canada N7M 5L8. Phone: 519-352-7730.

2781. *Ontario Soybean Growers Newsletter.*2001. Soyfoods Canada continues to promote soy. Dec. p. 5.
• ***Summary:*** "After completing a very successful inaugural year, Soyfoods Canada held its 2nd Annual Meeting in September. There are currently 30 members of the organization, representing all sectors of the soyfood industry. Soybean growers and suppliers, soyfood processors and distributors, as well as marketing firms involved with soy, have all joined in the effort to promote soy. OMAFRA also continues to play a pivotal role by supplying expertise and space for board meetings.

"In the past year, Soyfoods Canada has participated in the Good Food Festival in Toronto, voiced its opinion to government officials on Ontario's Edible Oil Products Act, hosted a soy health meeting in Vancouver, and produced a quarterly newsletter for its members. Plans are currently being made for a Soyfoods Canada website, a soy information / recipe brochure, and a soyfood promotion campaign.

For 2001/2002, the Executive Members of Soyfoods Canada are:

Bill Hawes, Tofutti-Cholac Foods–President.

Eric Hart, Galaxy Foods–Vice-President.

Andrew McVittie, W.G. Thompson & Sons–Secretary.

Ron MacDougall, Ontario Soybean Growers–Treasurer.
Address: Chatham, ONT, Canada N7M 5L8.

2782. *Ontario Soybean Growers Newsletter.*2001. Profiles: Paula Travado, Marketing Manager of OntarBio Organic Farmers Cooperative. Dec. p. 11.
• ***Summary:*** Discusses organic farming of soybeans and other crops in Ontario and Canada. "'One of the conventional food industry's biggest challenges in the years ahead will be addressing the question of GMO,' says Travado, acknowledging the controversial stand of the organic industry, while noting the importance of crop segregation to its survival. 'For the organic soybean producer, it's a very serious issue because of the fact that our national and international certification will not tolerate GMO.'"

"Still, Travado is optimistic about the future of the soybean industry, especially given its recently tremendous growth, noting more has been grown in the past few years than in the previous 20 years. She also states she's enthusiastic about the ongoing research into producing soybean varieties for areas of lower heat units." Address: Chatham, ONT, Canada N7M 5L8.

2783. Zavitz, James R. 2001. The Zavitz family of Ilderton, Ontario, Canada: Three family group sheets, with extensive notes. Ilderton, Ontario, Canada. 25 p. 28 cm.
• ***Summary:*** These three family group records were printed by James from his genealogical database. Chart 1 shows the descendants of Daniel Zavitz (1821-1904) and Susan Webster Vail (1827-1911). They were married on 2 Feb. 1847 in Oakfield, Genesee Co., New York, and had four children: Caroline Vail Zavitz (1847-1899; married David Cutler), Samuel Pound Zavitz (1850-1933; married Ida C. Haight), Edgar Merritt Zavitz (1857-1940; married (1) Alzina Brown; (2) Ada M. Cornes), and Charles Ambrose Zavitz (born 25 Aug. 1863 in Coldstream, Ontario; died 17 March 1942 at Poplar Hill, Ontario; married Rebecca Elizabeth Wilson on 3 June 1890 at Isaac Wilson's residence, Bloomfield, Ontario). The notes include transcriptions of: "Diary of Daniel Zavitz, written at Guelph on 23 Nov. 1896 (p. 2-6). The last will and testament of Daniel Zavitz (p. 6-7). Biography of Charles Ambrose Zavitz (p. 15-16). Citation honoring Charles Ambrose Zavitz on 11 June 1999 on the recommendation of the Senate of the University of Guelph, for the degree of Doctor of Science honoris causa, to be awarded posthumously.

Chart 2 shows the descendants of Charles Ambrose Zavitz and Rebecca Elizabeth Wilson. They had one child, Raymond Wilson Zavitz (1894-1968).

Chart 3 shows the descendants of Raymond Wilson Zavitz and Jessie Roscine Robertson. They were married on 31 Dec. 1918 in Knox Church, Toronto, Ontario, and had three children: Robert Charles Zavitz (1919-), James Robertson Zavitz (1922-), and John Wilson Zavitz (1926-). James joined the Royal Canadian Mounted Police in Jan. 1941 and retired at the end of 1970 with the rank of Sergeant-Major. He represented Canada at the Olympic Games in Melbourne, Australia, in 1956 (placing 13th), and at the World Shooting Championships in 1954 and 1958. He was Provincial Handgun Champion in Ontario, Quebec, and British Columbia almost continually from 1952 until his retirement in 1970. He has long been an active member of the United Empire Loyalists' Association. Address: R.R. 2, Ilderton, Ontario N0M 2A0, Canada. Phone: 519-666-1512.

2784. Boyte, Frances. 2001. Le tofu international: Délicieuses recettes des quatre coins du monde [Tofu–International: Delicious recipes from the four corners of the world]. Montreal and Paris: Les Éditions internationales Alain Stanké. 247 p. Recipe index. 22 cm. [Fre]
• ***Summary:*** Most of the recipes in this book were developed by four professional restaurant chefs; the name of the chef is given below each recipe name: Éric Boutin, Sébastien Leblond, Benoît Paquet, and José Trottier. The

name of the foreign country, a symbolic map, a quotation, and symbols for the degree of difficulty and cost are also given for each.

Contents: Foreword. Preface. A word from the author. Part I: Tofu. Introduction. What is tofu. Tofu and health. Part II: Tofu recipes. Entrées. Soups. Main dishes. Pâtes. Salads. Sauces. Side dishes / accompaniments. Breads and scones. Desserts. Iced drinks. The 3 chefs. About the author. Acknowledgments / appreciations. Recipe index (Alphabetical list of recipe names). Table of contents. Words of praise for the book and a color photo of the author appear on the rear cover. Address: Les Ateliers diététiques de Frances Boyte, 825, avenue Beauregard, Bureau 117, Sainte-Foy (Quebec), Canada G1V 4L7.

2785. Eden Foods, Inc. 2001. The history of Eden Foods. Clinton, Michigan. 3 p. Unpublished typescript. Undated.
• ***Summary:*** This chronology (1967-2001) begins as follows: "1967–Michael Potter and a small group of students on the Univ. of Michigan campus, begin making collective, small orders of natural foods from two of the largest wholesalers at the time.

"1968–Eden Foods Co-op is established in Ann Arbor, Michigan.

"1970–Eden Foods begins food processing, opening a bakery, cafeteria, and the 'Turtle Island' restaurant in Ann Arbor."

Note 1. The early entries in this chronology are deceptive and inaccurate. They make it appear as though Michael Potter founded Eden Foods since his is the only name mentioned in the chronology and since his name is mentioned just before the business was established. In fact, Potter did not join Eden Foods until Oct. 1971–a fact that is omitted in the chronology.

Note 2. Eden Foods was established in Nov. 1969–not in 1968. All of the founders (Bill Bolduc, Tim Redmond, etc.) and early publications agree on that date.

Note 3. The names of the founders of Eden Foods are, unfortunately, omitted from this chronology.

Note 4. One entry states: "1983–North America's 1st soymilk Edensoy is introduced." In fact, Miller's Soyalac Soya Milk had been made since 1940 in Mt. Vernon, Ohio, by International Nutrition Laboratory, founded by Dr. Harry Miller. It was on the market and sold well for more than 40 years.

The later entries are interesting and probably accurate: "1986–Eden opens a warehouse in San Francisco, California. 1987–Eden partners with the Hirzel family of Ohio to grow organic tomatoes, chilies & cabbage for Eden sauerkraut. 1989–Eden Organic Pasta Company becomes the first third party certified organic pasta facility in America.

"1991–The first Eden organic beans are canned in Eaton, Indiana. 1993–Eden expands its facilities in Clinton, Michigan. Eden first questions organic integrity under USDA/NOSB. Eden adopts a policy requiring affidavits from growers and suppliers guaranteeing that their food is GEO-free. 1994–Eden contracts with a cooperative of family orchards to secure organic tree fruit. 1997–Eden sponsors the first whole foods cooking show, 'Christina Cooks' nationally, on PBS. 1998–Eden introduces its first Biodynamic food, Whole Grain Rye Spirals and celebrates its 30th anniversary. 1999–Eden expands its warehouse facility for the eighth time.

"2000–AIB Certification, New Eden web site is launched and Edensoy Light is introduced. 2001–Eden purchases Sobaya, the Canadian producer of Eden Organic Traditional Japanese Pasta. Eden receives the prestigious 'Socially Responsible Business Award' for exemplary business practices. Over 400 vegetarian recipes are posted to Eden's renewed web site, along with detailed historical information, nutritional information and manufacturing descriptions for all of Eden's products." Address: 701 Tecumseh Rd., Clinton, Michigan 49236. Phone: 517-456-7424.

2786. Housez, Brita. 2001. The soy dessert and baking book. New York, NY: Avalon Publishing Group Inc. (Marlowe & Co. imprint). xxv + 213 p. Illust. (8 color photos). Index. 24 cm.
• ***Summary:*** Contents: Introduction. The soy baker's pantry. Cookies. Squares and bars. Cakes & frostings. Pies & tarts. Pancakes, crêpes, cobblers & dumplings. Muffins, biscuits & quick breads. Yeast breads. Hot & cold puddings. Custards, mousses, soufflés & trifles. Creams & sauces. Confections. Beverages. Acknowledgments. Address: St. Catharines, Ontario, Canada.

2787. Plante, Colombe. 2001. Le soja, le tofu et le seitan [Soya, tofu, and seitan]. Varennes, Quebec: AdA. 154 p. Illust. Index. 23 cm. [Fre]*
Address: Quebec, Canada.

2788. Popkewitz, Ian. 2002. Charles A. Zavitz and the American Society of Agronomy (Interview). *SoyaScan Notes.* Jan. 3. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** In 1910 Charles A. Zavitz was elected 2nd vice-president of the Society and in 1911 he moved up to first vice-president. He presented two papers at early annual meetings of the society in July 1908 and Nov. 1912. These were published in the *Proceedings of the American Society of Agronomy* in 1910 and 1913 respectively.

In 1925 Charles was selected as a fellow of the Society. Fellowship is the highest honor a member can receive in the American Society of Agronomy (ASA), and Charles was the first Canadian fellow of the society. Zavitz joined (became a member of) the ASA in or before 1915. To be nominated for

a fellow, one must have been an active member for 10 years. A committee reviews all the nominations each year, looks for the most outstanding members, and selects a small number of fellows. They can choose up to 0.3% of the society's active members that year, which is up to 1 out of 333 active members.

Each nomination consists of a write-up which asks: Title. Basis of nomination. Personal achievements, recognitions, and service. Degrees. Professional positions held. Membership in honorary academic societies. Membership in professional societies. Honors and awards received. Service to ASA: Appointed positions, elected positions. Other service: Significant committee work, or service to professional or honorary societies. Professional achievements.

In 1926 the Society started publishing a photograph and description of the new fellows each year in its Journal, so Charles was one year too early. Address: Head of Membership, American Society of Agronomy, Madison, Wisconsin. Phone: 608-273-8080.

2789. Carter, Jeffrey. 2002. More research dollars needed to breed export soybeans: There's less focus on producing new lines of foodgrade soybeans than on herbicide resistant beans. *Ontario Farmer (Canada)* 34(47):16. Jan. 15.
• ***Summary:*** This was the message of soybean exporter Michael Loh to farmers at the Southwest Agricultural Conference at Ridgetown. Loh emphasized that the Ontario soybean industry must respond to the needs of its customers. "My vision for southwestern Ontario and Canada is for us to have the image as being the place to go for the best foodgrade soybeans."

Roundup Ready varieties tend to produce a smaller sized bean, yet many Japanese customers want larger-seeded varieties–according to Morris Sagriff, a Lambton County farmer. A photo shows Michael Loh.

2790. *Soyfoods Canada Newsletter.*2002. 2001 annual meeting a great success. Jan. p. 1.
• ***Summary:*** Soyfoods Canada held its second annual meeting on 28 Sept. 2001 in Toronto at the Crowne Plaza Hotel. Speakers included Toby Davidson and Jeanne Cruikshank. A new board of directors was elected to serve during the coming year: Bill Hawes, President–President of Tofutti-Cholac Foods. Maheb Nathoo, Past-President–President and CEO of SoyaWorld. Eric Hart, Vice-President–Business Development Officer with Galaxy Nutritional Foods. Andrew McVittie,–Secretary–Soybean Sales Representative for W.G. Thompson & Sons and Sycamore Creek. Ron MacDougall, Treasurer–Soybean farmer representing the Ontario Soybean Growers. Paula Travado–OntarBio/Organic Meadows. Nick Feldman–Nutrisoya Foods. Peter Joe–Sunrise Soya Foods. Vivian Chiang–Momo's Kitchen. Garnet Pigden–PTI.

2791. *Soyfoods Canada Newsletter.*2002. Soyfoods Canada receives funding. Jan. p. 2.
• ***Summary:*** Soyfoods Canada's application for $30,000 to fund soyfood promotion was recently approved by Ontario's CanAdapt program. The main promotional activities will be: Website development (www.soyfoodscanada.com). Soy info / recipe brochure, with generic information on many different soy products. Portable display to take to various exhibits. Public relations / Soyfoods Month (April). Soyfoods Canada seal.

2792. Zavitz, James R. 2002. The Quaker system of meetings for worship and business (Interview). *SoyaScan Notes.* Feb. 1. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** To understand the life of Charles Zavitz, it is important to understand the organization of Quaker meetings. The word "meeting" refers to an event and an organization. Quakers in Canada have four levels of meetings: (1) The Preparative Meetings are the local ones, where members worship once each week. Each weekly meeting typically lasts an hour. Charles Zavitz and his parents were members of the Coldstream Preparative Meeting, which they helped to establish in 1848, with meetings in the homes of four families. Ten years later, in 1858, they built the Coldstream Meeting House. Today there are roughly 25-50 Preparative Meetings in Canada. Most also have a "Burying Ground" (cemetery). The smaller meetings may not have a Meeting House–the Quaker equivalent of a church–but would meet in the homes of members.

(2) The Monthly Meetings contain about 2-5 Preparative Meetings. They are more for business than for worship. Monthly Meetings are held at the site of one of the constituent Preparative Meetings, in a rotating manner, after the meeting for worship at that Preparative Meeting. Each Preparative Meeting appoints several representatives to attend the Monthly Meeting, however anyone who wishes to attend any Monthly Meeting or any of the other two upper meetings is perfectly free to go. Many people typically choose to go voluntarily. The Zavitz family, as representatives of the Coldstream Preparative Meeting, helped to establish the Lobo Monthly Meeting in 1893. James used to be clerk of the Lobo Monthly Meeting, which had Coldstream and Sparta Preparative Meetings. Although 4-10 people were appointed to go, typically 100-125 people might attend. At the Monthly Meeting there would be an agenda of items to discuss, partly in preparation for the next Half Yearly Meeting, or items that came down from the last Yearly Meeting that required local discussion. They would also approve marriages (when both partners were Quakers), etc. The Monthly Meeting, after the local meeting for worship, would typically last for 45 minutes to 2 hours.

(3) The Half Yearly Meetings covers a relatively large area and number of meetings. For the Zavitz family, the Half Yearly Meeting was Pelham located to the southeast in the Niagara Peninsula. Sometimes Half Yearly Meetings were at Pelham and sometimes at Lobo. Lobo and the other Monthly Meetings would appoint 2-3 delegates/ representatives to attend, but many others (many more than the total number of appointed delegates) would also go of their own volition. Half Yearly Meetings typically lasted 1-3 hours. There used to be Quarterly Meetings, but they have been discontinued. (4) The Canadian Yearly Meeting (CYM) is equivalent to the "head office." They sponsor a yearly meeting in Canada of all Canadian Quakers, and have an historical archives. Pelham and each of the other Half Yearly Meetings appoints 2-5 people to attend, but the total attendance is typically 200-250, of which only 40-50 are appointed by subordinate meetings. The yearly meeting is typically held in July or August at a college (including Newmarket, the one Quaker-run college in Canada) and last for about a week. Each day there would be a 1-hour meeting for worship, followed by the business session. Quakers are famous for organizing committees, and they have so many committees that very few members can avoid all of them. The yearly meeting is broken up into the reports of various committees. There must be unanimity, everyone present must agree, on each issue discussed before it is resolved; a majority is never enough.

This structure is a very effective way for many people to communicate, to get to know one another, and to be in agreement with what is happening. In addition, it helped to prevent inbreeding. Quakers are expected to marry other Quakers (although this is not a written policy or readily admitted), so young Quaker men and women often attended Monthly, Half-Yearly, and/or Yearly meetings where they could find new Friends and possible marriage partners. If a Quaker married a non-Quaker, their children were not "birthright Quakers." In part because of this strict ruling, there are not nearly as many Quakers in Canada today as there were 50 or 100 years ago. "We're kind of our own worst enemies," says James. "We're so fussy, we're kind of working against ourselves. His wife is not a Quaker so his children cannot be Quakers, unless they join as "convinced Quakers."

A few words about religion and doctrine: Members of the Religious Society of Friends (nicknamed "Quakers") are Christians and the *Bible* is their basic book. Their other basic book is the *Book of Discipline of the Religious Society of Friends*, which tells Quakers how to behave (especially the "Advices and Queries" section, which is a series of questions) and sets forth duties, procedures (marriages, deaths, etc.); this book originated long ago and is amended from time to time. The section on tobacco and alcohol, for example, encourages Quakers to abstain altogether, but a member would not be "disowned" for being unable to follow this guidance–except in extreme cases. A central concept in Quaker teaching is the "Inner Light" which is akin to one's conscience. Quakers sit quietly in meetings so they come in tune with this Inner Light, then live their lives guided by this Inner Light and with a clear conscience. A person with questions or problems about worship could talk with the Ministry and Council Committee.

All members, both men and women, are equal. There are no leaders, no hierarchy, no clergy, and no ministers. The one exception would be Canadian Yearly Meeting (CYM) office, the headquarters in Toronto, where the clerk of the CYM (a fairly permanent job) and about 6 employees send committee reports and epistles to the various members and Preparatory Meetings. Examples of these would be: "The Quaker Attitude on Jails and Justice." "Work of the Friends Service Committee." The clerk records what is said (the minutes) at business meetings. When two Quakers are married during a worship service, they both stand up and take their vows to each other; the only third person is the registrar who signs the papers and forwards them to Canadian civil authorities. Everyone in attendance at the meeting signs a big document. Address: R.R. 2, Ilderton, ON Canada N0M 2A0. Phone: 519-666-1512.

2793. Zavitz, James R. 2002. Why Charles Zavitz retired to Poplar Hill, Middlesex Co., Ontario (Interview). *SoyaScan Notes.* Feb. 1. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** James now lives in the house at Poplar Hill that formerly belonged to Prof. Charles Zavitz. Near his house at Poplar Hill in 1927 were the Quaker Meeting House at Coldstream (about 1 mile to the northeast), and the homes of his two brothers (Sam and Edgar, near the Meeting House; Edgar still lived in the house in which Charles was born, about ½ mile from Poplar Hill) and of many cousins, nephews, and nieces (a little further north and to the south). In addition, many cousins lived in Elgin County, which is just to the south of Middlesex County. Charles' wife came from Prince Edward Co., far to the east on the eastern end of Lake Ontario. So his whole family was within a 200-mile radius. Ontario Agricultural College, in Guelph, Wellington Co., was about 85 miles to the northeast of Poplar Hill.

This house in Poplar Hill was built in 1895 on property that was owned by Charles' uncle, Benjamin Zavitz, the brother of Charles' father, Daniel. Benjamin later sold the property to a cousin, Dr. Daniel Stewart (a veterinarian and undertaker), who built the house of yellow bricks. Later, in 1902, Dr. Stewart built a yellow brick barn (to match the house) nearby; scratched in the plaster in the top of the barn is "Sept. 12, 1902." The house that Benjamin lived in is very close to Charles' house at Poplar Hill.

In 1913 Charles bought the house and rented it out to a year-round resident until his retirement in 1927; he never lived in it during that time. Charles is quite sure that Charles

bought the house from the estate of a woman surnamed Pincombe, who must have bought it from Dr. Stewart. She died when she fell down the cellar steps of the house. Address: R.R. 2, Ilderton, ON Canada N0M 2A0. Phone: 519-666-1512.

2794. Zavitz, James R. 2002. Chronology of Charles Ambrose Zavitz. Ilderton, Ontario, Canada. 1 p. Unpublished typescript. Feb. 12. 28 cm.

• ***Summary:*** James wrote this chronology of his grandfather at the request of William Shurtleff of Soyfoods Center.

"1863–Born at Coldstream, Middlesex County, Ontario.

"1884–Enrolled at Ontario Agricultural College, Guelph.

"1886–Instrumental in revamping the Ontario Agricultural & Experimental Union.

"1887–Appointed Assistant Chemist. Recorded the first crop test yields.

"1888–Graduated with Bachelor of the Science of Agriculture Degree (took Honours in 10 of 11 papers).

"1889–OAC 'Review' started. CAZ gave it its name and was on the Editorial Board.

"1890–Married Rebecca Elizabeth Wilson of Prince Edward County. Appointed Assistant Director of Experiments (with 56 experimental plots).

"1893–Brought first Soy Beans to Canada. Appointed in charge of all Field Research.

1894–Son, Raymond Wilson Zavitz, born.

"1902–Started cross-fertilization of plants to concentrate desirable characteristics.

"1903–Started the seed chain that resulted in OAC #21 Barley. Appointed Professor of Field Husbandry and Director of Field Experiments.

"1904–A driving force in forming the Canadian Seed Growers' Association.

"1910–OAC #21 Barley registered and released to the public. Ontario Variegated Alfalfa established as best variety for Ontario Conditions.

"1914–Field Husbandry Building (now Zavitz Hall) opened. Appointed Acting President of OAC.

"1915–Relinquished Acting Presidency upon return of the President.

"1916–Awarded Doctor of Science Degree from University of Toronto.

"1920–50,000 hybrid plants evaluated annually.

"1923–Started developing red clover and forage grasses.

"1924–Increased value of crops developed at OAC estimated at $161,000,000.\ "1925–Released OAC #211 Soy Beans, the first to be registered in Canada.

"1926–OAC has released 3 varieties of Oats, 1 of Barley, 3 of Winter Wheat, 1 of Spring Wheat, 1 of Spring Rye, 1 of Field Peas, 1 of Soy Beans, 1 of Millet and 1 of Mangels.

"1927–Retired from OAC (2,800 experimental plots) and moved to Poplar Hill, Middlesex County.

"1931–Appointed Chairman, Canadian Friends' Service Committee (a Quaker enterprise).

"1932–Awarded Honorary Doctor of Laws Degree, University of Western Ontario. Published 'Spiritual Life.'

"1942–Died March 17th at Poplar Hill.

"1974–Admitted to the Canadian Agricultural Hall of Fame.

"1984–Admitted to the Canadian Agricultural Hall of Fame.

"1993–Honoured by the Ontario Soybean Growers' Marketing Board, marking 100 years of Soybeans in Canada.

"1999–Awarded Honourary Doctor of Science Degree by the University of Guelph (The University singled out its most illustrious graduate as part of its 125th Anniversary celebrations).

"In addition: The first Canadian Fellow of the American Society of Agronomy.

"An Honourary Fellow of the American Association for the Advancement of Science.

"An Honourary Fellow of the Canadian Society of Technical Agronomists." Address: 2 Park Cr., Poplar Hill, R.R. #2, Ilderton, ON Canada N0M 2A0. Phone: 519-666-1512.

2795. *SoyaScan Notes.*2002. Canada: Soybean production summary (Overview). Feb. 13. Compiled by William Shurtleff of Soyfoods Center.

• ***Summary:*** From 1936 to 1941 Canadian soybean production was static at about 500 tonnes (metric tons) per year. As World War II began and traditional Canadian imports of oils and fats were cut off, the country promoted soybeans to help make up the difference. In 1942 (actually 1942-43) Canada's soybean production jumped to 25,000 tonnes, then fell back to 16,000 tonnes in 1942. Then, from 1942 to 1951, it began its most dramatic period of growth from 16,000 tonnes in 1942, to 22,000 tonnes in 1945, 50,000 tonnes in 1948, 90,000 tonnes in 1950, and 105,000 tonnes in 1951. Production had increased more than 6.5-fold in only 9 years. Most of Canada's soybean crop during these early years was grown in southern Ontario province.

Growth continued, but at a less dramatic rate, to 186,000 tonnes in 1959. Then production dropped for several years to 136,000 tonnes in 1963, whereafter it continued at its former less dramatic rate: 219,000 tonnes in 1965, 283,000 tonnes in 1970, 367,000 tonnes in 1975, 690,000 tonnes in 1980, 1,011,000 tonnes in 1985, 1,262,000 tonnes in 1990, 2,297,000 tonnes in 1995, 2,703,000 tonnes in 2000.

2796. *Bluebook Update (Bar Harbor, Maine).*2002. Canadian association spurs launch of IP standard. 9(1):8.

Jan/March.
• ***Summary:*** The Canadian Soybean Export Association [Ontario] recently developed and launched a National Identity Preservation Standard. Canada's soybean industry has been growing food-grade soybeans for more than 30 years, and conducting IP programs for more than 15 years. So Canada has the infrastructure and experience to run sophisticated IP programs.

2797. *Ontario Soybean Growers Newsletter.*2002. Profiles: ProSoya Inc. and the SoyaCow. Feb. p. 7.
• ***Summary:*** Contains a small photo of a SoyaCow. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2798. Tanner, Jack W. 2002. The rise of soybeans in Ontario, Canada, and Prof. C.A. Zavitz (Interview). *SoyaScan Notes.* Feb. 3. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Charles Zavitz was unquestionably the soybean pioneer in Ontario, but he retired in 1927. Soybeans became a fairly important crop in Ontario during World War II, when they served as a source of vegetable oil but the crop didn't really take off until the early 1980s. The increase in corn acreage, starting in the early 1960s, was a major cause of the subsequent increase in soybean acreage. Corn acreage growth was related mainly to herbicides, single-crop hybrids, early corn which would stand up, cheap nitrogen– all those things came together to cause growth in corn acreage. This, in turn, did several things to cause soybean acreage to increase: (1) It cleaned out the quackgrass. (2) The soybeans moved onto farms where the grower had developed some kind of a cash-crop philosophy / mentality. (3) Soybeans became part of the rotation with corn. So until the corn crop grew, the soybean crop could not. Jack recalls many failures in the 1960s when they tried to move soybeans onto a farm that didn't have corn; the farmer would try soybeans once and they would be taken over by weeds and/or groundhogs. And they often wouldn't bear seed due to insufficient nodulation. So, after that failure, many farmers were reluctant to try soybeans again.

Moreover, it was not until the 1980s that early soybean varieties were developed. Before that time, in southwestern and central Ontario, they had Harosoy and a couple of other varieties. Maple Arrow was the first really good, early, high-yielding soybean variety. It enabled soybeans to expand northward into central and eastern Ontario. During the 1980s the number of recommended varieties expanded greatly, into the hundreds.

Nodulation was another big problem. "We were moving onto land that had never grown soybeans before. Its not that simple to just inoculate the first crop of soybean planted. During the 1960s and 1970s Jack and a colleague spent a lot of time on nodulation in soybeans. Farmers knew the importance of inoculating soybeans. But no matter how hard you tried, you could not get decent inoculation the first year. At that all the inoculants were based on peat; it wasn't until the granular inoculants came along in about the mid-1970s that you could really get the number of viable nodule bacteria that you needed to get enough nodules the first year.

Finally in the 1990s all these technologies and practices came together as a package for soybeans: Herbicides, granular inoculants, good early varieties, and the cash-crop philosophy.

Dr. Zavitz did pioneering research on soybeans from 1893 to about 1927 when he retired. He evaluated more lines and did more production research, both for hay and for the beans than anyone else at the time. But after Dr. Zavitz, during the 1930s, basically nothing happened with soybeans in the short-season part of Ontario. Moreover, OAC as an institution was in the doldrums during the 1930s; true, that was the decade of the Great Depression, but OAC was part of the Ministry of Agriculture and the college became a political football. Governments would change and people would get fired. One of Canada's premiers threatened to close OAC completely. It was terrible what was going on. So it was really until after World War II, when young guys started coming it that OAC started moving again, and agriculture became an outstanding department.

There was hardly any research going on there until George Jones joined the faculty in about 1946-47. George was a corn and soybean person and he had expertise in herbicides; he was the one who really promoted the corn crop here. He was called "The Christ of Corn," he was such a missionary for the crop that, for the first time, corn acreage expanded greatly, setting the stage for soybean expansion. The University of Guelph gave George an honorary degree last year. George tried to get soybean acreage to expand, then Jack did the same thing, but Dave Hume was the one who really got it going because the whole soybean package came together when he was promoting soybeans. Jack and Dave did a lot of work jointly, published jointly, and their soybean crews operated as one. They worked together on nodulation, on row width, planting date, variety trials, cooperative USDA trials, etc.

Starting with Dr. Zavitz, many people worked very hard to promote soybeans in Canada, but perhaps the most outstanding contribution to soybeans in Canada came from Cass Owen, who took over the soybean research at Harrow from Fred Dimmock. Owen developed Harosoy, which occupied 95% of Ontario's soybean acreage at one time; it was also the leading variety in Ohio, Illinois, Iowa. "There never was nor will there ever be a soybean variety that dominated like Harosoy in both southern Ontario and in central the U.S. Cornbelt. Harosoy was released in 1952 and it was a dominant variety until the late 1960s. Any varieties that came after it were crosses onto Harosoy. We needed a short-season variety with a decent yields, but we also

needed the soybean package (herbicide technology, nodulation technology, etc.) that we discussed previously.

For more details see: *125 years of achievements: OAC–A proud tradition, an exciting future, 1874-1999.* Look for soybeans in the index. Jack, who is very interested in the history of the soybean in Canada, wrote most of the parts related to soybeans. Address: Retired Prof., Plant Agriculture Dep., Crop Science Bldg., Univ. of Guelph, Guelph, Ontario N1G 2W1, Canada.

2799. **Product Name:** SoYummi: Soya Dessert [Chocolate, Raspberry, Lime, Banana-Coconut].
**Foreign Name:** SoYummi: Dessert de Soya.
**Manufacturer's Name:** Les Aliments SoYummi.
**Manufacturer's Address:** 3655 Redpath, Montreal, Quebec, Canada H3G 2W8.
**Date of Introduction:** 2002. March.
**Ingredients:** Soy drink (80%; not subjected to UHT), sugar, soy oil (later changed to high oleic sunflower oil), modified cornstarch, modified rice starch, lactic acid (to lower the pH for longer shelf life), modified vegetable gums, xanthan gum, salt, agar, natural flavors, yucca extract (rich in saponins).
**Wt/Vol., Packaging, Price:** 125 gm in a low plastic (polypropylene) cup, with flat lid and individual sleeve. Retails for Canadian $1.39.
**How Stored:** Refrigerated, 35-40 day shelf life.
**New Product–Documentation:** Cardwell, Mark. 2002. "As good as it gets." Food in Canada. May, p. 38.

Talk with Joanne Hollander. 2008. May 29. They introduced the first four products on 8 March 2002 at a food festival in Montreal; they were available for sale in stores about 2 weeks later. She has product labels in front of her. The products have always been made at the Food Research and Development Center (CRDA) in Saint-Hyacinthe, and the main office has always been at 3655 Redpath in Montreal. She started the research using tofu, but later switched to soymilk. She is a purist, and spent years trying to find the right tofu. Then she found that soymilk sold in ESL gable-top cartons has been subjected to UHT sterilization (up to 123ºC), which destroys 80% of the isoflavones and all of the vitamins–it ends up being a dead, inert food. She has read "many, many papers by Asian scientists about this destruction of isoflavones" and Dr. Ming (who she visited) at the University of Vermont has written about the destruction of vitamins. The process also kills all the enzymes and the bad bacteria–but it also kills the good bacteria. "The whole point of consuming soymilk is to get the isoflavones, the phytoestrogens." Her biggest obstacle to making healthy products is Health Canada; they won't let her use natural sweeteners. Stevia sold off the shelf but not allowed in commercial products. They push Splenda, Aspartame, and all those things that end in the letters "tol" (such an mannitol, sorbitol, glycerol, arabitol, erythritol), all the sugar-alcohols that acidify the body. "It's just a nightmare trying to develop a really healthy product in Canada." Her products has a shelf life of 40 days without using UHT soymilk. Joanne regards sugar (organic or not, including "cane crystals") as poison. "Its the worst thing; I don't think there is a good sugar. They are all acid-forming and terrible." "Soy oil is a omega-6 and it oxidizes quickly, so she doesn't like it, which is why she took it out of her first product. Yucca extract is a good source of saponins, which adhere to cholesterol molecules in the intestines so they can't get reabsorbed into the bloodstream, and are therefore excreted. Saponins are also foaming agents, so they help make a light mousse–which is the same consistency all the way through–no crust or topping. Its basically a pudding that is whipped and set. Her website is www.soyummi.ca. There is also a SoYummi (a different company) in New Jersey; URL: www.soyummi.com.

Because Joanne has done most of her research at the Center for Research and Development in Saint-Hyacinthe, she has access to many very smart food scientists and lots or reliable information about foods, food ingredients, and food processing.

Joanne's original product still contains sugar, but Joanne wanted to develop a product with no sugar, which led to her 2nd product, SoYummi GoLite.
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2800. **Product Name:** Soy Chips [Original (Lightly Salted), or Barbecue Mesquite], or Soy Crisps [Original (Lightly Salted), or Honey Mustard].
**Manufacturer's Name:** Snackie Jack's.
**Manufacturer's Address:** Toronto, Ontario, Canada (Marketer). Made in USA. Phone: (213) 688-7882.
**Date of Introduction:** 2002. March.
**Ingredients:** Incl. GMO-Free soybeans.
**Wt/Vol., Packaging, Price:** 3.5 oz (98 gm).
**How Stored:** Shelf stable.
**New Product–Documentation:** Leaflet (8½ by 11 inch, color, glossy, front and back) from Natural Products Expo West (Anaheim, California). 2002. March. "Feeling Snackie? Grab a pack of Snackie Jack's!"

2801. *Ontario Soybean Growers Newsletter.*2002. Fish food and fuel take honors in 2002 Project SOY. April. p. 1.
• ***Summary:*** Project SOY (Soybean Opportunities for Youth) began in 1996 as a way to encourage University of Guelph students to learn more about soybeans, and create innovative new uses for them. There are two categories: undergraduate/graduate, and diploma. The first, second, and third place awards are valued at $2,500, $1,000, and $500 in each category.

The 6th Annual Project SOY was held on 3 April 2002 at the University of Guelph. First place in the undergrad/grad category went to Soy Fizzy, a soy-based tropical fish

food. First place in the diploma category went to a soy biodiesel project. Other winning ideas were soy pancakes, a clean-burning soy fireplace log, soy and maple snacks, dog treats, and ski wax.

Project SOY is sponsored by First Line Seeds and the University of Guelph. A photo shows some of the winning students with their product concepts. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2802. *Ontario Soybean Growers Newsletter.*2002. Montreal Transit to use biodiesel in its bus fleet. April. p. 2.
• ***Summary:*** Starting on 27 March 2002 thousands of Montrealers began boarding city buses fueled partially by soybean oil. The buses use 20% biodiesel and 80% petroleum-based diesel. The biodiesel will greatly reduce tailpipe pollution. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2803. *Ontario Soybean Growers Newsletter.*2002. Hannam Soybean Utilization Fund recipients announced. April. p. 3.
• ***Summary:*** The $1 million fund, launched in 2000, is working to change the way the public thinks about soybean use and the way industry uses soybeans. The fund was donated to the University of Guelph by Peter Hannam and his family. This year graduate students will receive awards for engineering, food science, and animal science research. One project will examine ways to incorporate soybeans into aquaculture feed. Another will work to develop a biodegradable replacement for polystyrene in food packaging. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2804. *Ontario Soybean Growers Newsletter.*2002. Soyfoods Canada receives funding. April. p. 3.
• ***Summary:*** The funding from Ag Canada's CanAdapt Program will be used to launch a soyfoods promotion campaign. More specifically, the money will be used for: Website development. A new soy info / recipe brochure. A display for use at consumer food shows. Public relations.

Ontario Soybean Growers (OSG) is a member of Soyfoods Canada. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2805. *Ontario Soybean Growers Newsletter.*2002. Quebec margarine battle heats up. April. p. 5.
• ***Summary:*** Butter-colored margarine has been illegal in Quebec since 1987, when legislation was enacted to protect Quebec's 10,000 dairy farmers from competition. Quebec is the only province–and one of the few jurisdictions in the world–still enforcing a ban on colored margarine. Ontario's ban officially ended in 1995.

In 1994, under the terms of the Agreement on Internal Trade (AIT), Quebec agreed to drop its margarine restrictions by Sept. 1997. However it backed down from that commitment after an aggressive campaign by the powerful dairy lobby. Now, after more than 4 years of non-productive negotiations between Ontario and Quebec governments, Ontario has asked a dispute settlement panel, allowed under the AIT, to make a ruling on the issue. The decision of the panel is final–although it may be difficult to enforce.

At the same time Unilever Canada Ltd. began a challenge of the ban in Quebec's Court of Appeal on March 25th. Unilever is appealing a 1999 Quebec Superior Court ruling that upheld the ban, but found the prohibition to be protectionist. Unilever, which makes three brands of margarine, says it incurs about $1 million annually in additional costs because of the ban. The court decision is expected within 6 months. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2806. *Ontario Soybean Growers Newsletter.*2002. Profiles: Tim Haig, president and CEO of BIOX, works to promote the benefits of biodiesel. April. p. 7.
• ***Summary:*** Haig's company, founded in Sept. 2000, builds biodiesel processing plants. The BIOX process cuts the cost to just $0.08 per liter, making it comparable and competitive with petroleum-based diesel products–as long as government subsidies are provided! A photo shows Haig. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2807. *Ontario Soybean Growers Newsletter.*2002. Market scan: The OSG position on Roundup Ready white hilum soybeans. April. p. 8, 6.
• ***Summary:*** In Jan. 2002, the Ontario Oil & Protein Seed Crop Committee (OOPSCC) recommended the registration of several varieties of white hilum soybeans that carry the Roundup Ready gene. Ontario Soybean Growers (OSG), which has one voting member on the Committee, voted in favor of the registration of Roundup Ready white hilum (RRWH) soybeans–but only after long thought and discussion. One of the main issues was whether the introduction of RRWH soybean varieties into Ontario would cause problems for special quality white hilum (SQWH) exports.

A survey conducted last year by Dr. George Brinkman and Jeremy Heigh of the University of Guelph found that in the past three years (1999-2001), exports of SQWH soybeans decreased by 39% while exports of identity preserved (IP) and other specialty soybeans increased by 57%. This trend is expected to continue. Generally, IP soybeans earn higher premiums than SQWH soybeans.

RRWH soybeans have been available in the USA for two years. There are no restrictions on soybean imports to Canada from the USA. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2808. *Soyfoods Canada Newsletter.*2002. Quebec margarine battle heats up. April. p. 1.
• ***Summary:*** "Quebec's long-standing refusal to lift a ban on butter-coloured margarine is now being challenged on two fronts. Both the Ontario government and Unilever Canada are fighting to have Quebec remove this inter-provincial trader barrier.

"Butter-coloured margarine has been illegal in Quebec since 1987, when legislation was enacted to protect Quebec's 10,000 dairy farmers from competition. Quebec is the only province–and one of the few jurisdictions in the world–still enforcing a ban on coloured margarine.

"In 1994, under the terms of the Agreement on Internal Trade (AIT), Quebec agreed to get rid of its margarine-colouring restrictions by September 1997, However it backed down from this commitment after an aggressive campaign by the powerful dairy lobby."

2809. *Soyfoods Canada Newsletter.*2002. Soyfoods Canada member profile–Tofutti-Cholac Foods. April. p. 2.
• ***Summary:*** "Tofutti-Cholac Foods was started in 1985 and incorporated under the present name in 1988. Tofutti-Cholac Foods has the distribution rights for Tofutti products for all of Canada, except Quebec, which operates independently as Tofutti Montreal.

Contact: Bill Hawes, Tofutti-Cholac Foods, 165 Kozlov Street, Unit 20, Barrie, ON L4N 7M7 Canada.

2810. Kiberd, B.A.; Clase, C.M. 2002. Cumulative risk for developing end-stage renal disease in the US population. *J. of the American Society of Nephrology* 13(6):1635-44. June. *

2811. McCreery, Liam. 2002. Chairman's corner. *Ontario Soybean Growers Newsletter.* June. p. 2.
• ***Summary:*** The U.S. Farm Bill is obscene and its' effects will echo through the entire agricultural world. And make no mistake, the industry that will be most affected will be the grains and oilseeds sector. The current farm bill spends about $10 billion U.S. annually in the base program, with emergency payments taking that number up to $17 billion. The new farm bill will see that base number, before emergency payments, jump to over $17 billion U.S. annually.

"To put that huge number into perspective, you must realize that the entire output of all of Canada's 240,000 farms adds up to around $18.5 billion U.S. This is almost the same as what the U.S. puts into subsidies. Every primary producer of grains and oilseeds in Canada will be negatively impacted. What can we do?" Gives several suggestions.

"We are good at what we do, but we are being bashed by the U.S. farm bill, European subsidies and prohibitive tariffs. These barriers keep us out of markets where we could compete, given a chance." Address: Chatham, ONT, Canada N7M 5L8.

2812. *Ontario Soybean Growers Newsletter.*2002. Canadian and Ontario acreage estimates. June. p. 3.
• ***Summary:*** A table shows estimates of intended acreage for soybeans, corn and winter wheat for Ontario, Quebec, and Canada (total) for 2002 and the actual planted acres for the 2001 crop year.

For soybeans, the two figures are (2001 / 2002): Ontario: 2,150,000 / 1,975,000. Quebec: 370,700 / 341,000. Manitoba: 45,000 / 100,000. Canada (total): 2,573,700 / 2,424,000.

Note: In both years, the Canadian total is slightly greater than the sum of Ontario, Quebec and Manitoba because small amounts of soybeans were grown in at least one other province. Address: Chatham, ONT, Canada N7M 5L8.

2813. *Ontario Soybean Growers Newsletter.*2002. Profiles: Jim Lowe, Regional Director of the Canadian Grain Commission's Bayport Region. June. p. 7.
• ***Summary:*** Discusses the workings and great importance of the Canadian Grain Commission (CGC).

"One of the hallmarks of the Canadian grain industry is its high quality; another is its consistency. The two components provide an element of certainty for food processors and other secondary industries that handle grains, whether it's corn, barley, chick peas, wheat or soybeans. There is nothing accidental about this country's reputation for excellence where its grains are concerned; the Canadian Grain Commission (CGC) has played a vital role in helping develop and maintain that reputation over the years."

A portrait photo shows Jim Lowe. Address: Chatham, ONT, Canada N7M 5L8.

2814. *Nutrition Business Journal (San Diego, California).*2002. U.S. consumers gain appetite for meat alternatives: Boca, Gardenburger and Sunrich expand market with new meat alternative products. 7(7):4-6. July.
• ***Summary:*** A pie chart shows the $395 million meat alternative market (wholesale figures, 2001) divided as follows: Kellogg (Morningstar Farms) 45%. Kraft (Boca Burger) 15%, Gardenburger 14%, ConAgra (Lightlife) 11%, Hain Celestial (Yves Veggie Cuisine) 8%. This converts to about $550 million in consumer sales, with about 60% via the mass market channel, 30% through natural / health food stores, and 10% through other channels. Soy-based meat alternatives accounted for about 85% of those sold in mass market outlets and 80% of those sold in natural / helath food stores. Growth during the previous year (2000) was estimated at 14.5% (16.4% in mainstream and 10.1% in natural / health).

In mainstream supermarkets and grocery stores, frozen products account for 68% of meat alternatives, while the remaining 32% are refrigerated. In natural food stores, 59% are sold refrigerated and 41% frozen. In the refrigerated category, Lightlife claims to have 50% of the market in natural food stores, followed by Yves (34.5%) and Veggie Patch (3%).

A new major player is Quorn, a European company making products from mycoprotein (myco = mold or fungi, not mushrooms).

Kraft owns both Boca Burger and Oscar Meyer; the latter just entered the meat alternative business. Kraft's newest introduction is Boca Ground Burger in microwaveable pouches, for use in recipes ranging from tacos to spaghetti.

2815. *Canadian Soybean Bulletin (CSEA, Chatham, Ontario, Canada).*2002. Overview of Ridgetown College, University of Guelph. Summer. p. 1-2.
• ***Summary:*** "The Western Ontario Experimental Farm, now known as Ridgetown College, University of Guelph, was established in 1922 for the purpose of agriculture crop and livestock research and development. In 1951, the College introduced its first two-year residential diploma educational program in agriculture. Today, there are over 4,200 graduates of Ridgetown College. Currently educational programs include diplomas in Agriculture, Horticulture and Veterinary Technology."

"Specifically in soybeans, there are research programs that cover the following area: soybean breeding and germplasm improvement, soybean agronomy, disease and insect control, economics, weed management, and feeding trials specifically in swine. The soybean breeding program concentrates on variety development for the MG I and MG II maturity zones as well as germplasm enhancement. Varieties released from the program include a number of higher-protein, yellow-hilum varieties suitable for export markets. This includes the following lines currently being grown commercially: RCAT Bobcat, RCAT Legacy, Ivory CK-01 and PRO 30-02.

"The germplasm development portion of the program attempts to modify the intrinsic properties of seed (protein, oil, carbohydrates) to produce a soybean of higher value for premium based production. Currently efforts have been targeted toward modifying the oil profile within soybeans. This includes decreasing linolenic acid and the saturated fats as well as increasing the monounsaturated fatty acid, oleic, to improve oil stability and nutritional characteristics. To date several soybean lines with unique modified oil profiles have been developed. The most advanced traits in terms of breeding are the low linolenic acid soybeans." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2816. *Canadian Soybean Bulletin (CSEA, Chatham, Ontario, Canada).*2002. Canadian and Ontario acreage estimates. Summer. p. 4.
• ***Summary:*** A table shows estimates of intended acreage for soybeans, corn and winter wheat for Ontario, Quebec, and Canada (total) for 2002 and the actual planted acres for the 2001 crop year.

For soybeans, the two figures are (2001 / 2002): Ontario: 2,250,000 / 2,075,000. Quebec: 365,700 / 333,600. Manitoba: 50,000 / 103,000. Canada (total): 2,672,700 / 2,545,100.

Note: In both years, the Canadian total is slightly greater than the sum of Ontario, Quebec and Manitoba because small amounts of soybeans were grown in at least one other province. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2817. Jenkins, David J.A.; Kendall, C.W.C.; Jackson, C.-J.C.; et al. 2002. Effects of high- and low-isoflavone soyfoods on blood lipids, oxidized LDL, homocysteine, and blood pressure in hyperlipidemic men and women. *American J. of Clinical Nutrition* 76(2):365-72. Aug. [49 ref]
• ***Summary:*** Many of the benefits of soyfoods consumption have been attributed to isoflavones. However this study found that substitution of soyfoods for animal products, regardless of isoflavone concentration, reduces the risk of coronary artery disease risk because of reductions in blood lipids, oxidized LDL cholesterol, homocysteine, and blood pressure. Address: 1. Clinical Nutrition and Risk Factor Modification Center, St. Michael's Hospital, 61 Queen Street East., Toronto, Ontario MC5 2T2, Canada.

2818. McCalla, Douglas. 2002. Afterword to James Zavitz's talk. *Canadian Quaker History Journal* No. 67. p. 17-18. [2 ref]
• ***Summary:*** He adds a few reflections: (1) Charles Zavitz's decision to attend the OAC suggests an interest in leadership within agriculture. But in those days few farmboys attended college. (2) Zavitz was a "weighty" Friend, in a community with egalitarian values. Yet leadership was essential to rural progress. (3) We "have a tendency to imagine earlier societies, especially rural societies, as somehow 'traditional'; we contrast them with our modern world." Charles Zavitz's lifelong efforts to apply science to agriculture are vivid testimony to his modernity. (4) Today knowledge and innovation have become the core of the economy. Yet Charles Zavitz systematically documented the economic value of his work to agriculture. Address: Canada Research Chair in Rural History, Dep. of History, Univ. of Guelph, Guelph, Ontario, CanadaUniv. of Guelph.

2819. *Ontario Soybean Growers Newsletter.*2002. Central Soya acquires CanAmera. Aug. p. 5.
• ***Summary:*** In late May Central Soya Co., "the North American operating unit of Cereol S.A., acquired full ownership of CanAmera Foods of Canada. CanAmera is Canada's largest producer of edible oil products. Central Soya has owned 50% of CanAmera since it was formed in 1992 as a joint venture partnership with Saskatchewan Wheat Pool, and Agricore United." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2820. *Ontario Soybean Growers Newsletter.*2002. Biodiesel gets a boost. Aug. p. 5.
• ***Summary:*** In June 2002, Ontario's provincial government took a major step toward establishing a viable biodiesel industry in Ontario when it announced the removal of the 14.3 cents/liter provincial tax on biodiesel fuels. Biodiesel is cleaner burning and renewable. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2821. *Ontario Soybean Growers Newsletter.*2002. Canadian Soyfoods Directory revised. Aug. p. 9.
• ***Summary:*** First published in 1997, the new version is available only on the website www.soybean.on.ca. Funding for the project came from Agriculture and Agri-Food Canada's CanAdapt program. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2822. Zavitz, James R. 2002. Recollections of my grandfather, Charles Ambrose Zavitz. *Canadian Quaker History Journal* No. 67. p. 4-16.
• ***Summary:*** These loving recollections, filled with fine stories and anecdotes, reveal many details that were previously unknown about the life and sterling character of Charles A. Zavitz.

The author, James R. Zavitz, was born on 28 July 1922 in Ottawa, Ontario, Canada. His first memories of his grandparents date from late 1925 when, at 2½ years of age, he was sent to live with them at Guelph. His mother was having a difficult pregnancy with his younger brother, John, who was born on 10 Feb. 1926–so things were much easier with little James out of the way.

Note: The subject of this special issue is "Quakers and agriculture." Soyfoods Center also owns the unpublished typescript, received 13 Feb. 2002 from James R. Zavitz. 28 cm. Address: R.R. 2, Ilderton, Ontario N0M 2A0, Canada. Phone: 519-666-1512.

2823. *Bluebook Update (Bar Harbor, Maine).*2002. Soy 20/20 explores new markets for Canadian soybeans. 9(3):2. July/Sept.
• ***Summary:*** Soy 20/20 is a pilot project within Canada's Agricultural Policy Framework (AF). Canada's federal government, the province of Ontario, and the soybean industry will contribute more than $400,000 in an attempt to capture more of emerging markets for value-added soybeans.

2824. *Bluebook Update (Bar Harbor, Maine).*2002. SoyaDairy provides consultants. 9(3):3. July/Sept.
• ***Summary:*** SoyaDairy is headed by Frank Daller and Brian Harrigan, both formerly of ProSoya, Inc. Also with the new consulting company are Koichi Watanabe, owner of La Soyarie, and Hart Melvin, owner of Gelato Fresco. Phone: 613-741-6888.

2825. Noble Bean. 2002. Tempeh–Noble Bean (Leaflet). McDonalds Corners, Ontario, Canada. 2 p. 6 panels. Front and back. 28 cm.
• ***Summary:*** The front 3 panels of this color leaflet are printed with black and yellow on a green background: (1) About the company in English, with an oval color photo of Casey, Marty, Susan, and Allan. "Noble bean is a family-run cottage industry nestled in the rolling hills of the Ottawa Valley. Here on 10 acres of land we produce 100 lbs. of tempeh a day." In 1979 the company was started. (2) Six tempeh products (packages and labels) made by Noble Bean, plus one old and two new photos of the family at work. (3) About the company in French with a cartoon illustration of the outside of the shop.

The inside 3 panels contain recipes for Tempeh Salad and Tempeh Teriyaki, plus an early photo of Allan and Susan making tempeh. Address: RR#1, McDonalds Corners, ONT, Canada K0G 1M0. Phone: (613) 278-2305. Fax (613) 278-0173.

2826. Bauch, Hubert. 2002. Obituaries–Hartland Molson: Senator presided over Molson dynasty. *National Post (Canada).* Oct. 1. p. S7.
• ***Summary:*** Molson (who died Sept. 28 at age 95) was "perhaps the Canadian establishment's quintessential figure" in his time. "He was a business visionary; he saw the potential of soya beans decades before tofu became a household word in the Western world."

Note: Talk with Jim Zavitz of Canada. 2002. Oct. 1. Jim has a book about the Molson family, but it does not mention soy. The Molson family was one of Canada's oldest, wealthiest, and most influential families. Hartland Molson was a pilot in the Oct. 1941 Battle of Britain (he was shot down but survived), in 1955 (at age 48) he was appointed to the Canadian senate by Canada's Prime Minister, and in 1957 he became long-time owner of the Montreal Canadiens hockey team as they were in the midst of their unequalled run of five consecutive Stanley Cup championships. In 1995 he received the Order of Canada and in 2000 was made a member of the Order of Quebec. A portrait photo shows Hartland Molson.

2827. Belleme, Jan. 2002. Miso production in the USA (mainland), Hawaii, and Canada. Miso exports from Japan to the USA and the UK (Interview). *SoyaScan Notes.* Oct. 23. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** John interviewed each of the miso manufacturers in these three regions and they gave him their company's production statistics, sometimes on the understanding that he would only publish aggregate figures–which are: USA (including Hawaii) 1,326,000 lb/year (601.5 metric tons/year). Hawaii 660,000 lb/year (299.4 metric tons/year). Canada 313,200 lb/year.

Miso exports from Japan to the USA were 5,561,160 lb/year (2,520 metric tons/year) and to the UK were 308,644 lb/year (140 metric tons/year).

Note: Comparing these figures with comparable 1982 figures published in *The Book of Miso* (1983, p. 240): Miso production in the USA (including Hawaii) has decreased 56.7% from 3,064,444 lb/year (750 metric tons/year) in 1982. Miso production in Hawaii has decreased 53.3% from 1,410,944 lb/year (640 metric tons/year) in 1982. Miso imports from Japan to the USA have increased 263% from 2,114,211 lb/year (959 metric tons/year). Address: P.O. Box 457, Saluda, North Carolina 28773.

2828. American Soybean Assoc. 2002. Bean beat: ASA activities increase market for soy products in India. *Soybean Digest.* Oct. p. 26.
• ***Summary:*** Suresh Itapu, ASA/India Technical Director of Soy Food Marketing, says that as a result of ASA promotion work, 55 Indian entrepreneurs are now making soymilk and tofu using the Canadian SoyaCow technology. Last year at this time only 31 such entrepreneurs were in business. In addition, with strong support from the ASA-managed World Initiative for Soy in Human Health (WISHH) program, three medium-sized SoyaCow units (53 gallons/hour capacity) have been installed in India alone. And Godrej, a major Indian food manufacturer which failed in the late 1980s in its efforts to launch soymilk, has entered the market again after extensive trials and test marketing.

As a result of all this activity, soymilk production in India during the past year has increased from 290,000 gallons to 924,000 gallons. And Itapu believes that the future looks bright. Soyfoods look like an idea whose time has finally come in South Asia.

2829. *Ontario Soybean Growers Newsletter.*2002. Ontario farmers quickly adopting herbicide-tolerant [Roundup Ready] soybeans. June. p. 7.
• ***Summary:*** Note: Herbicide-tolerant soybeans have been genetically engineered so that the herbicide kills weeds but not the soybean plants on which it is sprayed.

"The rising trend of adopting herbicide-tolerant (HT) soybeans and environmentally friendly no-till practices is documented in a new report by the George Morris Centre.

"The study, surveying 352 Ontario soybean growers on their cropping practices, found that 30 percent of Ontario's soybean acreage was planted to HT seed in 2001. The new technology makes good economic and environmental sense, because producers report making 1.7 fewer field passes than they did three years ago.

"Put into the context of the 2002 soybean crop, farmers continue to vote with their seeders. Adoption rates have increased again from 30 percent in 2001 to an estimated 40 to 45 percent of 2002 soybean acreage.

"'Our study also found a positive correlation between size of operation and the adoption of HT seed and no-till practices,' says Cher Brethour, lead researcher for the George Morris Centre. 'Larger farm operations with gross farm income of more than $200,000 tend to use more HT soybeans, use better conservation tillage practices and leave more crop residue on the land.'" Address: Chatham, ONT, Canada N7M 5L8.

2830. *Ontario Soybean Growers Newsletter.*2002. Profiles: Bill Walters, OSG Director from Elgin, farms near St. Thomas. Oct. p. 7.
• ***Summary:*** "In terms of identifying the greatest potential for soybean producers, Bill views the industrial market as the key growth sector, but only because there is so much competition for food grade quality product. 'With limited returns on the extra management and effort required to produce IP [identity preserved] food quality soybeans, I believe more growers will continue to grow Roundup Ready commercial beans,' explains Bill.

"The big impact on how markets will take shape in the future, he adds, will come from Brazil. And the impact won't be felt south of the border only, but around the world. As Brazilian production continues to increase, world export markets will become limited and serve to deflate prices. To fight this, adds Bill, the U.S. will continue with its lavish subsidies to its grains and oilseeds producers, which will only help them to maintain their current production levels. That scenario isn't one that Bill welcomes.

"'I fear that without more Canadian government support, Ontario may become a dumping ground for US soybeans.'" A portrait photo shows Bill Walters. Address: Chatham, ONT, Canada N7M 5L8.

2831. *Soyfoods Canada Newsletter.*2002. Soyfoods Canada launches website. Oct. p. 3.
• ***Summary:*** The website was launched in September: www.soyfoodscanada.com.

2832. Elwel, Christian. 2002. Miso more than food: Life! Healing in Rwanda. *River Currents: News from South River Miso Company (Conway, Massachusetts).* Fall/Winter. p. 2. Nov.

• ***Summary:*** Note: Some dates and details were added to this published story by William Shurtleff based on an interview with Gilbert Boulay conducted by Shurtleff on 24 Nov. 2002.

Gilbert Boulay and Suzanne Dionne met in Quebec in about 1982. She was a student of forest engineering and she a student of food science and agronomy; they soon became a couple and shared a common interest in international development and refugee problems. In 1984 they applied to various organizations. Gilbert was hired by a volunteer organization in Quebec. In Aug. 1984 they both first arrived in the central African nation of Rwanda, where he and began to work as a Canadian volunteer with the United Nations as an advisor to the Rwandan Ministry of Agriculture and Forestry in the field of forest management and reforestation. Suzanne began working in nutrition centers introducing food products that promote health. They both soon decided to teach Rwandans how to make miso. Suzanne first learned to make miso by herself following the method in *The Book of Miso.* In about Sept/Oct. 1988 she made a quick trip to study miso making with Yoshi and Lulu Yoshihara in British Columbia; she was there 3-4 days. Back in Rwanda, she made miso at their at home in the capital, Kigali. In 1989 they returned to Quebec, where they were married. Soon the president of Rwanda, Juvénal Habyarimana became interested in miso and in July 1989 he actually mentioned it in one of his speeches. Soon thereafter, Suzanne gathered the means to rent a house and turn it into a miso workshop and neighborhood restaurant. She soon had 22 people on her staff making miso and other natural foods. Miso saved the life of a five-year-old girl who had been unable to digest food. "This and similar experiences were a major turning point for Suzanne, as she realized more fully the healing potential of miso."

In 1992 she returned to Canada to study business management with the goal of establishing an organic food-processing business.

After receiving her MBA, Suzanne Dionne and her husband Gilbert Boulay launched their business, *Les Aliments Massawippi,* at 4530 Chemin Capelton, North Hatley, Quebec, Canada J0B 2C0. Phone: 819-842-2264. In 2001 they made their first batch of commercial miso for local distribution. In June 2001 Suzanne received the *Prix Entrepreneurship Fémenin* at the *Concours Québécois en Entrepreneurship* for creating two new health food products.

In Dec. 2001 she published the French-language edition of her book about miso. The English-language edition was published in June 2002.

Both Suzanne and Gilbert presently work full time at their miso company; they make the miso in their home and have one employee, a woman who is a chemical engineer from Yugoslavia.

Note: The most recent genocide in Rwanda began in April 1994.

2833. Hain Celestial Group, Inc. (The). 2002. Annual report 2002. Melville, New York. 36 p. Nov. 28 cm.
• ***Summary:*** Accompanying the annual report is a "Notice of Annual Meeting of Stockholders and Proxy Statement" (33 p.). Irwin Simon, the founder and CEO, age 44, had the following annual compensation: Salary: $520,000. Bonus: $12,000. Other compensation: $12,300. Stock options: 300,000 shares. Address: 58 South Service Road, Melville, New York 11747. Phone: 516-237-6200.

2834. *Nutrition Business Journal (San Diego, California).*2002. Mergers & acquisitions in the organic industry. 8(11):9. Nov.
• ***Summary:*** Discusses: Stake Technology, two Canadian distributors, and Opta Ingredients. Dean Foods and White Wave. Danone, Stonyfield Farm, and Lifeway Foods. Coca-Cola, Odwalla, and Mad River. Hain-Celestial, Imagine Foods, Yves (Canada), and Lima (Belgium).

2835. *SoyaScan Notes.*2002. Chronology of major soy-related events and trends during 2002 (Overview). Dec. 31. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Jan. 1–The Kerry Group (of Wisconsin and Iowa) creates Nutriant as its new nutritional division; into Nutriant it merges Solnuts and Iowa Soy.

March–Proceedings of the Fourth International Symposium on the Role of Soy in Preventing and Treating Chronic Disease held at San Diego, California, published as a supplement to the *Journal of Nutrition,* 132(3):545S-619S. General chairpersons and Supplement editors: Stephen Barnes and Mark Messina.

March–A new tofu plant owned by Sunrise Soya Foods of Vancouver, starts operation in Toronto, Canada. This is the company's first plant in eastern Canada.

March 15–Minnesota becomes the first U.S. state to pass legislation requiring diesel fuels sold in their state to contain a 2% blend of biodiesel (B2). By 1 July 2002 nearly every gallon of diesel fuel sold in Minnesota must contain a 2% blend of biodiesel.

May 8–Dean Foods announces that it has signed a definitive agreement to acquire the 64% equity interest in White Wave, Inc. it does not currently own. The price of this 64% was approximately $189 million, bringing Dean's total investment to approximately $204 million. White Wave had total sales of approximately $125 million during the 12 months ending 31 March 2002.

May (late)–Central Soya Co. acquires CanAmera, Canada's largest producer of edible oil products. Central Soya had owned 50% of CanAmera since it was established in 1992.

July 22–Bunge Ltd., North America's leading soybean processor, announces an agreement to acquire a majority stake in Cereol S.A., the Paris-based parent of Central Soya Co., headquartered in Fort Wayne, Indiana.

Aug. 13. Pharmacia spins-off Monsanto; as a result, Pharmacia no longer owns any equity interest in Monsanto. During fiscal 2002 Monsanto suffered huge financial losses. Net income showed a *loss* of $1,693 million–down dramatically from +$295 million in 2001.

Oct. 1–Bunge acquires Cereol S.A. (based in Paris), which includes Central Soya (a U.S. soybean processing pioneer and leading manufacturer of soy protein concentrates and soy lecithins) and CanAmera Foods (in Canada).

Oct. 4–Mr. Shoan Yamauchi, the most important tofu pioneer in the United States and Hawaii, dies in Torrance, California. He began making tofu in Hawaii in 1939 at a company that was started in 1923. In 1947 he and his wife came to Los Angeles, where in late 1947 they purchased the Hinode Tofu Co. at 6th St. and Towne Ave. This company, which is now named House Foods America Corporation (still in Los Angeles), is the oldest existing Japanese-American tofu manufacturer in the United States.

Oct. 21–The National Organic Standards take effect.

Sept. (late)–U.S. Food & Agribusiness Exhibition in Havana, Cuba. Some 290 U.S. companies take the rare opportunity to present their products to over 16,000 visitors.

Nov. 14–Biodegradable hydraulic fluid made from soy oil is first used in the elevator inside the Statue of Liberty. Its advantages over the petroleum-based oils previously used are its environmental friendliness and improved safety–says the National Park Service and USDA.

Dec.–Hain-Celestial buys Imagine Foods (maker of Soy Dream and Rice Dream) for $52 million. Imagine has annual sales of about $70 million.

2836. *Canadian Soybean Bulletin (CSEA, Chatham, Ontario, Canada).*2002. Overview of the University of Guelph–Guelph, Ontario. Winter. p. 1-2.
• ***Summary:*** The University of Guelph, established in 1964, consists of six colleges with a broad range of undergraduate and graduate programs. The oldest of these is Ontario Agricultural College (OAC), which has long been an essential part of the agricultural research conducted at the University, including that on soybeans. "Professor Charles Zavitz, himself a graduate of OAC's class of 1888, is considered the pioneer in bringing soybeans to Ontario." He initiated numerous field evaluations and management techniques, and identified some "selections that had superior performance such as Early Yellow in 1898, a selection from Early Yellow named OAC 111, and OAC 211, which became the first soybean variety registered in Canada in 1925."

"These early research efforts by Zavitz were continued on a larger scale on oilseed soybeans by many faculty, graduate students and other researchers at the University of Guelph from the 1940s until the present. The development of many high-yielding early season varieties and a complete production package by the University of Guelph researchers has led to a wide expansion of soybean growing area in Ontario, making it the largest cash crop in the province since 1997." Address: Canadian Soybean Export Assoc., P.O. Box 1199, Chatham, Ontario, Canada N7M 5L8. Phone: 519-352-7730.

2837. *Canadian Soybean Bulletin (CSEA, Chatham, Ontario, Canada).*2002. Soybean soybean harvest 2002. Winter. p. 2.
• ***Summary:*** Soybean production in Canada for the crop years 2001 and 2002 (Sept. 1 to Aug. 31) are as follows (in tonnes = metric tons): Canada 1,641,100 / 2,389,100 (up 45.6%). Ontario 1,279,100 / 1,905,100 (up 48.9%). Quebec 315,000 / 350,000 (up 11.1%). Manitoba 47,000 / 134,000 (up 185%).

In 2001 the soybean crop was ravaged by drought. Source: Statistics Canada, Sept. 2002 crop report. Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

2838. *Canadian Soybean Bulletin (OSG, Chatham, Ontario, Canada).*2002. Canadian soybean exports. Winter. p. 2.
• ***Summary:*** A large table shows statistics in tonnes (metric tons) of soybeans exported to various countries, and regions, each year from 1998/99 to 2001/2002. The countries are: In Asia–China, Hong Kong, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, and Thailand. In Western Europe–Austria, Belgium, Denmark, France, Germany, Italy, Netherlands, Norway, Portugal, and Spain. By continent–Africa, Central America, Eastern Europe, Middle East, Oceania, South America, and United States.

In 2001/2002 the countries to which the largest amount of Canadian soybean exports went were (in tonnes): Japan 126,619, Malaysia 101,698, United States 60,244 Germany 29,377, Indonesia 26,836, Hong Kong 22,800.

Total soybean exports have declined dramatically during the past two years, from a peak of 946,360 in 1999/2000, to 746,241 in 2000/2001, down to 471,492 in 2001/2002.

2839. Jenkins, D.J.; Kendall, C.W.; Faulkner, D.; et al. 2002. A dietary portfolio approach to cholesterol reduction: Combined effects of plant sterols, vegetable proteins, and viscous fibers in hypercholesterolemia. *Metabolism* 51:1596-604. Dec. *
• ***Summary:*** In this study, 13 subjects were provided with pre-measured quantities of foods and were told what and

when to eat for a one-month period. The diet, composed of a variety of foods each known to be moderately effective in combatting cholesterol levels, cut bad cholesterol by close to 30% among study participants.

Soy products used in the study included soymilk, margarine, soy deli meats, and tofu. Address: Univ. of Toronto.

2840. Kaplan, J. Kim. 2002. For you, the consumer. *Agricultural Research* 50(12):4-9. Dec.
• ***Summary:*** A color photo on the top half of the first page shows many soy products, both foods and Industrial products, including: Kaukauna Nacho Cheese, Yves Veggie Tofu Wieners, ProSobee soy formula, NutriGrain energy bars, Betty Crocker Creamy deluxe, Wish-Bone salad dressing, Edensoy soymilk, Mori-Nu Tofu, Ken & Robert's Veggie Burgers, SoyGold industrial solvent, Natural Touch Okara Pattie, soy ink and a newspaper printed with it.

Many "products that people use every day could justifiably carry the stamp 'Courtesy of ARS Research.'" Omaha Steaks began offering irradiated hamburger patties and ground beef in November 2000–to be sure it is free of *Escherichia coli* O157:H7, bacteria that can cause serious, even life-threatening illness. Today all the 6.5 million pounds of ground beef they sell is irradiated, which means it is treated with "ionizing radiation produced by cobalt and cesium atoms, machine-produced X-rays, or electron beams. Treated meat in no way becomes radioactive." Final FDA approval for irradiation treatment of meat came in Feb. 2000.

Nutrim, a product similar to Oatrim developed by USDA's Agricultural Research Service (ARS), is now being used to make vegan, organic chocolate truffles. Mrs. Mudd's Inc. (Oceanside, California) makes the delicious products; Nutrim flows like heavy dairy cream or coconut cream.

Tifsport is a variety of bermuda grass developed for football and soccer fields, and golf courses. Address: USDA-ARS Information Staff, 55601 Sunnyside Ave., Beltsville, Maryland 20705-5128. Phone: 301-504-1637.

2841. *Ontario Soybean Growers Newsletter.*2002. Fred's health report. Dec. p. 7.
• ***Summary:*** "Fred Brandenburg, General Manager of the Ontario Soybean Growers, suffered an aortic aneurysm in October. Following emergency openheart surgery to replace the valve in his aorta and also to repair the wall of the aorta, Fred is doing well and has returned home to recover.

"Fred is thankful for all the thoughts and prayers from his friends and colleagues, and he hopes to be back to work in the new year.

"Get well soon, Fred!" Address: Chatham, ONT, Canada N7M 5L8.

2842. Jenkins, -; et al. 2002. Dietary portfolio approach to cholesterol reduction. *Metabolism* 51:1596-1604. [29 ref]*
• ***Summary:*** In 2002 the Joint Health Claims Initiative (JHCI) in the United Kingdom approved a health claim for the cholesterol lowering effects of soy protein. "Although the effects of soy protein are not as pronounced as that of cholesterol-lowering drugs such as statins, they can be a very important part of a heart-healthy diet.

This article tests the effects of using a combination of dietary approaches on serum cholesterol levels. Address: Univ. of Toronto.

2843. **Product Name:** [Mo' Tuna: Veggie Filets].
**Foreign Name:** Filets Végétariens de Thon.
**Manufacturer's Name:** Momo's Kitchen Ltd.
**Manufacturer's Address:** P.O. Box 94203, Richmond, BC V6Y 2A4, Canada.
**Date of Introduction:** 2002.
**Ingredients:** Water, non GM soy protein concentrate, non GM sunflower oil, wheat gluten, glucose, evaporated cane juice, salt, seasoning, natural food flavours, dill weed, lemon oil, natural food color.
**Wt/Vol., Packaging, Price:** 6 oz (170 gm) paperboard box (2 patties). Retails for $2.69 at Safeway supermarket (2002/03, Lafayette, California).
**How Stored:** Refrigerated.
**New Product–Documentation:** Product with Label purchased at Safeway supermarket in Lafayette, California. 2002. March 11. 4 by 4½ by 1½ inches. Blue, white, red, orange and green on purple.

2844. Kneen, Brewster. 2002. Invisible giant: Cargill and its transnational strategies. 2nd ed. London and Sterling, Virginia: Pluto Press. x + 222 p. Index. 22 cm. 1st ed. 1995. [210 ref]
• ***Summary:*** A critical (and we think sometimes unfair) analysis of Cargill's strategies, activities, and structure. Contents: 1. Mutant giants: Introduction, Bunge Ltd., Louis Dreyfus & Cie, Cargill's world, public policy. 2. Cargill Inc.–The numbers. 3. Origins, organization and ownership. 4. Policy advocacy and capitalist subsidies. 5. Creatures: Feeding and processing. 6. Cotton, peanuts, malting. 7. Invisible commodities. 9. E-commerce. 10. Coming and going: Transport and storage. 11. Typical stories–Canada and Mexico. 12. Fertilizer. 13. The West Coast. 14. Rivers of soy–South America. 15. Juice. 16. The 'Far East.' 17. Seeds. 18. Salt. 19. Only Cargill's future? Notes.

On the rear cover we read: "Transnational corporations straddle the globe, largely unseen by the public. Cargill, with its headquarters in the US, is the largest private corporation in North America, and possibly in the world. Cargill trades in food commodities and produces a great many of them... There are few national economies are unaffected by Cargill's activities, and few eaters in North

America whose food does not pass through Cargill's hands at some point. Yet Cargill remains largely invisible to most people and accountable to no one outside the company. This is the second edition of an explosive book that breaks the silence on the true extent of Cargill's power and influence worldwide–its ability to shape national policies, and the implication of those strategies for all of us."

About the author: "Brewster Kneen is Canada's foremost analyst and critic of agribusiness." Address: Canada.

2845. Praestiin, Julie. 2003. Sanitarium buys out Soyaworld. *Record (SDA, Victoria, Australia)* 108(2):3. Jan. 18.

• ***Summary:*** Kevin Jackson, CEO of Sanitarium Foods (Australia), recently announced the company successful purchase of Soyaworld in Canada. "'On entering the initial agreement [about 2 years ago] we purchased half of the business and also negotiated an option to buy the remaining part of the company. We have now exercised our option to purchase the remaining 53% of Soyaworld, and, as such, we now own 100 per cent of the Canadian company' said Mr Jackson on announcing the takeover."

Soyaworld, which produces So Good soymilk, now has a 60% share of the soymilk market in Canada. Its current annual sales is about $A46 million (Australian). A photo shows Kevin Jackson. Address: Berkeley Vale, NSW, Australia.

2846. IQPC. 2003. Canadian Soyfood Congress 2003: Exploring opportunities in the national and global soyfood industry (Brochure). Toronto, ON, Canada. 8 p. + 1 p. insert. 28 cm.

• ***Summary:*** This two-day conference will be held on 28-29 April at the Holiday Inn on King [St.], Toronto, Ontario, Canada. A detailed presentation of speakers and their subjects is given. Conference chair: Dr. Gregory Penner: Project Director, soy 20/20. Incl: Peter Joe, President, Soyfoods Canada. Dr. Rajesh Gupta, President, ProSoya Inc. Photos show: (1) Peter Golbitz, President, Soyatech. (2) Peter Joe. Address: International Quality and Productivity Centre, 415 Yonge St., Suite 1600, Toronto, ON M5B 2E7. Phone: 1-800-882-8684.

2847. Russnogle, John. 2003. Old market, new possibilities: Non-GMO is now part of life in Japan. *Soybean Digest.* Jan. p. 24.

• ***Summary:*** Japan was for many years the world's No. 1 buyer of American soybeans until 1999, when it was surpassed by China and Mexico. In 1993 Japan bought 980,000 tonnes (metric tons) of U.S. food-grade soybeans, or 75.6% of that country's total soybean imports. But by 2002 that figure dropped by one-third to an estimated 659,000 tons–just 57.9% of Japan's imports. During that time, Canada's soybean exports to Japan increased 2.6 fold, from 57,600 tonnes to 150,000 tonnes (from 4.4% in 1993 to 13.2% of Japan's total imports in 2002). And Japan has almost tripled its own production of food-grade soybeans from 68,000 tonnes to 200,000 tonnes. Japan's increased production is partly the result of a government program that gives growers big financial incentives to convert rice acres to soybeans. Japan grows more rice than it can consume, but produces only 5% of its total soybean needs. Japanese like Brazilian soybeans, which tend to be higher in protein and oil than their U.S. counterparts.

2848. Sarwar Gilani, G.; Sepehr, Estatira. 2003. Protein digestibility and quality in products containing antinutritional factors are adversely affected by old age in rats. *J. of Nutrition* 133(1):220-25. Jan. [29 ref]

• ***Summary:*** "The protein digestibility-corrected amino acid score (PDCAAS) has been recommended to be the most suitable method for routine evaluation of protein quality of foods by FAO / WHO." Address: Nutrition Research Div., Food Directorate, Health Canada, Ottawa, ONT, Canada.

2849. *Ontario Soybean Growers Newsletter.*2003. Sign up to receive OSG newsletter on-line. Feb. p. 1.

• ***Summary:*** "Do you want to receive your soybean news faster?

"The Ontario Soybean Growers newsletter is now on-line, and every issue can be sent directly to your e-mail. To subscribe, go to our website at www.soybean.on.ca. In the left hand index, click on Newsletter, and then completely fill out the required information form. You have the option of receiving your newsletter by e-mail only, or you can receive it both electronically and in hard copy." Address: Chatham, ONT, Canada N7M 5L8.

2850. *Ontario Soybean Growers Newsletter.*2003. OSG promotes Canadian soybeans on mission to Asia. Feb. p. 2.

• ***Summary:*** "The Canadian soybean industry travelled to Asia in November 2002 to conduct eight seminars in eight Asian cities. The seminars were held in Japan (Tokyo, Nagoya, Osaka, Fukuoka), Malaysia (Penang, Kuala Lumpur), Singapore and Hong Kong.

"Liam McCreery and Kim Cooper from the Ontario Soybean Growers participated in this trip, along with 12 other members of the Canadian Soybean Export Association, representing exporters, researchers and government.

"The objectives of this trip to Asia were:

"To meet with soyfood associations and various buyers and give them presentations on the Canadian soybean industry and the IP [identity preserved] soybean standard that was developed by the Canadian Soybean Export Association last year.

"To demonstrate how both the Canadian and Ontario governments are working in partnership with the Canadian soybean industry to develop, market and ensure the highest quality of food-grade soybeans to meet export customers' needs.

"To gather information on customers' markets, needs and suppliers (market intelligence) in order to better provide a quality and competitive product.

"To provide information to export customers on the 2002 soybean crop in terms of yield, quality and grade. To emphasize Canada's commitment to further develop research and marketing programs in response to buyer's needs.

"This trip was very successful in attaining its objectives. All mission members and our overseas buyers felt these seminar presentations were very informative and needed if we are to further expand our market base around the world."

A large photo shows OSG past chair, Lam McCreery. Address: Chatham, ONT, Canada N7M 5L8.

2851. *Ontario Soybean Growers Newsletter.*2003. Profiles: Peter Joe, President of Sunrise Soya-Foods, says that with soy, "Tasting is Believing." Feb. p. 7.
• ***Summary:*** "Sunrise Soya Foods is the success story created by Leslie and Susan Joe, who came to Canada from China in 1955. Two years later, they began producing tofu for customers in Vancouver's Japantown and Chinatown. Sunrise Soya Foods grew out of its original location in 1963; the Joe family continues to operate this location as a food store, serving the local community. The tofu manufacturing plant expanded again in 1983 to its current manufacturing and head office location. According to current president Peter Joe, this was the most significant move in the company's 26 year history. "'With the new facility, "pasteurized, packaged" tofu was produced. This allowed the company to open markets in other provinces in Canada, including Ontario and Quebec, and helped build the company into the largest tofu processor in Canada–and fifth in North America,' explains Peter, the eldest of four children, all of whom are involved in the Sunrise Soya Foods business. Peter holds an MBA from the University of British Columbia and has managed the business full-time since 1984.

"Besides running his own business, Peter is helping to improve consumer acceptance of all soy products through his involvement in Soyfoods Canada. This national soy industry group has been working for the last 3 years to show consumers the benefits of adding soy to their diets through in-store promotions, a new soy information / recipe brochure, displays at consumer shows and a website (www.soyfoodscanada.com). Peter is currently President of the association."

A portrait photo shows Peter Joe, looking very happy. Address: Chatham, ONT, Canada N7M 5L8.

2852. *Ontario Soybean Growers Newsletter.*2003. Market scan [Soybean meal usage, Chinese meat consumption, and Chinese annual per capita disposable income are all up dramatically]. Feb. p. 8.
• ***Summary:*** "Soybean meal consumption (what we will call usage) around the world in 1992 was 76.12 million tonnes [metric tons], while in 2001 that figure jumped to 124.3 million tonnes, an increase of 63% in those same ten years.

"The main market for soybean meal is animal feed. Soybean meal has become the most important source of protein for livestock around the world. It is the standard against which other protein sources are compared.

"The growth in soybean meal consumption can be directly attributed to the increasing world consumption of meat. It is not in North America that meat consumption is seen increasing, but rather in many of the Asian countries.

"If we look at China, total meat sales over the past seven years have increased 62%. With over 1.2 billion people, even a slight rise in per capita consumption of meat translates into a huge amount of meat. In order to meet the corresponding increase in demand for animal feed, soybean crushing plants are quickly being built. Chinese officials report there are presently 20 to 25 crushing plants either being built or now operating in coastal regions. Chinese crush capacity was expected to reach 35,000 tonnes per day by the end of 2002.

"One of the reasons for the higher meat consumption is the increase in disposable dollars in the average Chinese consumer's pocket. The per capita annual disposable income of the average Chinese urban household has risen an amazing 240% in the past ten years.

"When more money is available, one of the first things low-income people spend it on is food. And one of the main foods bought with these extra dollars is meat. Exports of total meat products from Canada to China in 1992 were valued at $639,000. By 2001, the value of meat exports to China had jumped to $22,700,000." Address: Chatham, ONT, Canada N7M 5L8.

2853. *Soyfoods Canada Newsletter.*2003. Soyfoods Canada member profile–Nutrisoya Foods. Winter. p. 3.
• ***Summary:*** "Nutrisoya Foods Inc. first commenced operations in 1988 as a manufacturer of pasteurized, high protein tofu for sale in supermarkets under the Nutrisoya brand. Its production facilities are ideally located in St. Hyacinthe, Quebec, 30 miles east of Montreal, in the agricultural heartland of Eastern Canada, and is immediately adjacent to the most advanced food research centre in North America.

"In 1992 Nutrisoya Foods made its first foray into the aseptically packaged, dairy alternative beverage market with

the launching of its *natur-a* brand of soy beverages.

"Today Nutrisoya Foods operates out of an altra-modern, fully automated, computer driven plant..."

Contact: Nick Feldman, President, Nutrisoya Foods Inc., 4050 Pinard, Saint-Hyacinthe, QC J25 8K4, Canada. www.nutrisoya.com.

2854. *Soyfoods Canada Newsletter.*2003. Soyfoods Canada membership list. Winter. p. 4.
• ***Summary:*** For 2002/2003 there are 26 members in Soyfoods Canada. Their names are listed.

2855. *SoyaScan Notes.*2003. Chronology of the pioneering work of Ms. Frances Boyte of Quebec with vegetarianism and soyfoods in Canada (Overview). March 7. Compiled by William Shurtleff of Soyfoods Center.
• ***Summary:*** Frances, who now lives in Quebec City, Canada, is a registered dietitian, and is currently working with a Metro, a chain of 300 supermarkets, to introduce organic foods.

1980–She starts Club Vegetarien (C.P. 8953, Ste-Foy, Quebec G1V 4N8), which at its peak in about 1982 had 100 members. The club held dinners at a restaurant with guest speakers. It was discontinued in about 1987.

1982–*La Magie du Tofu,* which she co-authored with chef Yvonne Tremblay, is published. As of 2003, it has sold 60,000 copies. She developed and started to sell a tofu kit at the time of publication of the book.

1984–She sends her detailed Curriculum Vitae (4 typed pages) to William Shurtleff at Soyfoods Center in California.

1985–She visits Soyfoods Center in California. Shortly thereafter she has the idea for and establishes the Soyfoods Assoc. of Quebec–the first soyfoods association in Canada; however it never really got off the ground.

2001 April 7–Her latest book titled *Le Tofu Internationale* published. An English-language edition will be published in Dec. 2003.

2856. SunRich Food Group Inc. 2003. Sunrich (Portfolio). Toronto, Ontario. 9 inserts. 31 cm.
• ***Summary:*** The cover of this portfolio is a composite color photo on a tan background. The photo shows (L-R) whole soybeans, a glass of soymilk, green edamame (in the pods), a farmer in a field examining heads of wheat, a wooden scoop of corn flour and grits, whole kernels of corn. Below it is the SunRich logo, the name in red, a stylized yellow sun background, and the tag line below: "Your direct link to Nature." On the inside front cover are six oval color photos, each explaining Sunrich's mission.

Inserts: (1) Identity preserved grain program. (2) SunRich: Your direct link to nature–Quality, integrity, expertise. (3) Maltodextrins & sweeteners. (4) Fours, meals & grains. (5) Vegetable oil. (6) Premium whole soybeans. (7) Soy ingredients (incl. soymilk, oatmilk, multigrain beverages, soymilk powders, soy flour, textured soy protein). (8) One company: One mission–Unlimited organic snack solutions! The SunRich Food Group Inc. is a Stake Technology Company. (9) Shelled edamame recipe ideas. Address: Toronto, Ontario.

2857. **Product Name:** Pete's Tofu 2 Go [Sesame Ginger Tofu with Jazzed Ginger Soy Sauce, Lemon-Pepper with Mango Chipotle Sauce, Santa Fe Sizzle with Pineapple Mango Fusion Sauce, Thai Tango with Mango Wasabi Sauce].
**Manufacturer's Name:** Sunrise Soya Foods.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC Canada V6A 1H5. Phone: 1-800-661-2326.
**Date of Introduction:** 2003. March.
**Ingredients:** Sesame Ginger: Tofu (water, certified organic soybeans, calcium sulfate), whole sesame seeds, dehydrated ginger, dehydrated garlic, spices, soybean oil, soy sauce (water, wheat, soybeans, salt), vinegar, brown sugar, salt. Jazzed ginger soy sauce: water, soy sauce (water, wheat, soybeans, salt), brown sugar, dehydrated organic ginger, sesame seeds, sesame oil, vinegar, lemon juice, dehydrated onion, dehydrated garlic, citric acid, xanthan gum.
**Wt/Vol., Packaging, Price:** 14.4 oz (206 gm) in tray inside plastic bag. Retails for $2.79 (2004/03, Lafayette, California).
**How Stored:** Refrigerated.
**New Product–Documentation:** Leaflet (8½ by 11 inch, color) from Natural Products Expo West (Anaheim, California). 2003. March. "Pete's Tofu: Taking the guesswork out of tofu!" "Pete's Tofu: A whole new way to enjoy tofu."

Product (Sesame Ginger) with Label purchased at Trader Joe's in Lafayette, California. 2004. March 13. 4¼ by 8½ by 2 inches deep. Brown, green, black, and white on tan. Color photo shows four triangles of tofu around a square pan of the sesame ginger sauce with mint leaves on a red plate. "Made from organic soybeans. Cholesterol free, High in soy protein. High in calcium. No preservatives added. Ready-to-eat tofu with sauce for snacking and more." Contains two 6.2 oz pouches of tofu plus two 1 oz packets of sauce. Logo: "Certified organic by Quality Assurance International (QAI)." Soyfoods Center evaluation: This product comes in innovative packaging. Four tofu triangles (which have been marinated and baked, or deep-fried) are packed two-deep in each of two vacuum pack cubes. These cubes are placed in the two compartments (2½ inches square by 3/8 inch deep) of a plastic tray. The sesame ginger sauce comes in small plastic pouches. These three items are invisible inside the outer plastic bag. To serve. Cut open the vacuum pack cubes. Place tofu triangles in compartments of plastic tray. Cut open pouches and pour sauce over tofu. Eat as a finger food

or with a food. Product concept: Excellent. Flavor and texture: Very good, but there is too much liquid in the two vacuum pack cubes; it must be drained off when they are opened.

2858. **Product Name:** Pete's Tofu [Medium Firm for Mixing, Super Firm for Dicing, Italian Herb Super Firm Tofu, Very Berry Dessert Tofu, Peach Mango, Soft for Blending, Lemon-Pepper with Mango Chipotle Sauce, Santa Fe Sizzle with Pineapple Mango Fusion Sauce, Thai Tango with Mango Wasabi Sauce].
**Manufacturer's Name:** Sunrise Soya Foods.
**Manufacturer's Address:** 729 Powell St., Vancouver, BC Canada V6A 1H5. Phone: 1-800-661-2326.
**Date of Introduction:** 2003. March.
**Wt/Vol., Packaging, Price:** 12-16 oz (206 gm) inside plastic bag.
**How Stored:** Refrigerated.
**New Product–Documentation:** Leaflets (8½ by 11 inch, color) from Natural Products Expo West (Anaheim, California). 2003. March. (1) "Pete's Tofu: Taking the guesswork out of tofu!" Color photos show 5 of the packages. "Innovative overwrap packaging–now to the tofu category. Unique color-coded packaging. Eye-catching colors." (2) "Pete's Tofu: A whole new way to enjoy tofu."

2859. *Seedling (Quarterly Newsletter of Genetic Resources Action International, Barcelona, Spain).*2003. Contaminating Canada's seed supply. April. p. 7-12, 19. [26 footnotes]
• ***Summary:*** The subtitle reads: "In Canada, the privatisation of the farmer's seeds continues to advance at a breathtaking pace. Canadian farmers have fewer and fewer varieties of seed to choose from, fewer places to buy it from and fewer rights to produce their own seed. Now they face another threat: the contamination of the entire seed supply with genetically modified [GM] seed.

In 2002, 65% of Canada's oilseed rape (canola) was genetically engineered for herbicide resistance. That same year, genetically engineered [GE] crops were grown on 3.5 million hectares in Canada, up 90% from the previous year. The following technical terms are defined: Breeder seed, foundation seed, certified seed, and pedigreed crop.

"Traditionally, crop development in Canada has been an informal partnership between public breeders, farmers, and government. In the early 1980s, the public sector still accounted for 100% of formal plant breeding of cereals and oilseeds. The government provided the financial support and farmers were responsible for the multiplication and diffusion of public varieties and seed saving."

"Farm-saved seed has traditionally provided the bulk of Canada's seed supply." But in the 1970s and 1980s, the Canadian government decided to reorient its policy. "Establishing a private seed and agricultural biotechnology industry became its new priority, and conflicts with the traditional plant breeding framework became inevitable.

"The private seed industry could not make a profit in Canada on its own. The Canadian government provided hundreds of millions of dollars to the seed industry in direct subsidies, tax credits and matching public-private partnership grants... In just twenty years, the seed industry and the government have reduced the old partnership to tatters. The foundations of the old system–the free exchange of germplasm and the active participation of farmers in the seed supply–are on the verge of disappearing."

"Most major food crops in Canada are self-pollinating and highly stable." Until recently, genetic "contamination" was a meaningless concept. But with the introduction of GE crops, genetic contamination has become a major concern. Oilseed rape, has the largest area plant to GE plants in Canada, Now unwanted GE oilseed rape is "turning up all over the place in western Canada–even in the fields of farmers who have never planted it–at the rate of 4 plants per square meter! "Monsanto, the leading GM oilseed rape company in Canada, claims that all oilseed rape plants in farmers' fields containing their patented Roundup Ready gene belong to them, even if plants arrived in the fields accidentally or the gene was transferred through cross-pollination. The Federal Court of Canada recently upheld Monsanto's interpretation in a case between the company and Percy Schmeiser, an oilseed rape farmer from Saskatchewan (see box, p. 10, titled "Percy Schmeiser: pawn in a dangerous game." It tells his story and has his portrait photo).

But contamination in happening not only in the farmers' fields. "A number of studies show that the pedigreed oilseed rape supply is deeply contaminated... Walter Fehr, an agronomist and director of the Office of Biotechnology at Iowa State University, says the same is true of other crops such as soybeans and maize. If the breeder seed supply is contaminated, then the whole system is contaminated and it will be hard to find any fields that can be considered GM free."

On page 11 is a long discussion of the origins and meaning in Canada of "identity preservation" (IP) which is seen as "a way to shift the responsibility for genetic contamination on to farmers, while boosting seed sales." IP was set up to give Canada a "significant competitive advantage." "The actual problem for farmers is not with securing competitive advantage but with preventing the competitive disadvantages caused by the introduction of GM varieties... It is also a way to shift the costs and responsibility of contamination onto farmers growing non-GM crops."

Now farmers are fighting back. In June 2001, organic farmers in Saskatchewan, spurred by the GM contamination of virtually all oilseed rape and the looming introduction of Roundup Ready wheat, formed the Organic Agriculture

Protection Fund. The fund is pursuing a lawsuit against Monsanto and Aventis for making it impossible to grow organic oilseed rape and has initiated a nationwide campaign with the National Farmers Union (NFU)... to stop the introduction of GM wheat. The transnational biotech industry has managed to co-opt government for its own purposes.

2860. *Ontario Soybean Growers Newsletter.*2003. Bad breath? Try soy! May. p. 1.
• ***Summary:*** "Bone-healthy breath strips and biodegradable planters were the top winners in this year's Project SOY (Soybean Opportunities for Youth), an annual contest for University of Guelph students to develop new uses and markets for soybeans. The event wrapped up April 3 in Guelph with an awards ceremony where winners were presented with first-, second- and third-place awards valued at $2,500, $1,000 and $500, respectively.

"First place went to Flavone Ice, breath strips containing bone-healthy soy isoflavones. They were developed by master of science student Vicky Lee and hospitality and tourism MBA student Wilda Lau. Lee and Lau got the idea for Flavone Ice after reading government literature recommending 90 mg of isoflavones–a secondary nutrient in soybeans–a day to help prevent osteoporosis. Each Flavone Ice strip acts quickly to freshen breath and contains 30 mg of isoflavones. "Having three strips throughout the day could have positive effects on bone health," said Lau.

"Second place went to biological engineering undergraduate students Renzo Gomez, Brian Palmer and Stephanie Sage for biodegradable planters called Plant SoyLutions. Because soy contains nitrogen, which plants require for growth, the plant containers made of soy reduce labour for the gardener, eliminate waste of empty containers and help the plant grow.

"Third place went to four students who developed Pastawave–a soy macaroni and cheese product. Honourable mention went to the creators of SmartStart Power Muffin Mix."

"Participants in Project SOY who want to advance their products to the commercialization stage can apply to the Hannam Soybean Utilization Fund for assistance. The fund is a $1-million gift to the University from Peter Hannam and his family. Peter is an Ontario Agricultural College graduate who was instrumental in initiating Project SOY."

A photo shows the three student inventors of Plant SoyLutions. Address: Chatham, ONT, Canada N7M 5L8.

2861. *Ontario Soybean Growers Newsletter.*2003. Repeal of EOPA delayed until 2004. May. p. 1.
• ***Summary:*** "In December, the Ontario Legislature gave unanimous approval to a bill that delays the repeal of the Edible Oil Products Act (EOPA) to June 1, 2004. Under the Food Safety and Quality Act, 2001, the EOPA was originally scheduled for repeal in June, 2003.

"The EOPA is an outdated piece of legislation that regulates foods made with edible oils that resemble dairy products. It prohibits the manufacture and sale of such products in Ontario if they contain any dairy ingredients. Repealing this Act would increase the opportunities for the soy industry to develop innovative vegetable oilbased spreads and other products for the health-conscious consumer market.

"The Ontario government has promised to meet with affected stakeholders and the federal government to seek consensus on the outstanding issues involving dairy and edible oils. The OSG will participate in these consultations and continue to work with Soyfoods Canada and the Edible Oil Foods Association of Canada to ensure that the EOPA is repealed as currently legislated."

Note: In short, EOPA says: (1) Vegetable oils cannot be added to commercial dairy products. (2) Dairy products cannot be added to commercial dairy alternatives. Address: Chatham, ONT, Canada N7M 5L8.

2862. *Ontario Soybean Growers Newsletter.*2003. Welcome back Fred! May. p. 4.
• ***Summary:*** "The OSG Board is pleased to announce that former General Manager Fred Brandenburg has returned to work after a 4 month absence due to illness.

"Before returning to the OSG, Brandenburg requested a change in his responsibilities; the Board honoured his request and Fred's position is now Industry and Government Relations Manager. In his new role, Brandenburg will focus on maintaining the relationships that the OSG has with both the federal and provincial governments, as well as with others in the soybean industry. He will also work to ensure that any programs developed by the government meet the needs of Ontario's soybean producers.

"'It is great to welcome Fred back to the OSG team. His expertise on government programs has been greatly missed,' says Bill Allison, Chair of the Board. 'With Fred working specifically on government relations, we are assured that the OSG's voice is being heard on issues affecting our growers.'

"To fill the vacant General Manager's position, the Board has appointed Matt McLean to serve as acting GM. Matt has been with the OSG for 5 years, and also serves as the Board's Research and Technology Coordinator." Address: Chatham, ONT, Canada N7M 5L8.

2863. *Ontario Soybean Growers Newsletter.*2003. Federal government helps make biodiesel viable. May. p. 4.
• ***Summary:*** "The federal government took a big stride towards increasing the viability of biodiesel production and use in Canada with February's budgetary announcement of

the removal of the 4-cent-per-litre federal excise tax on biodiesel. This federal tax exemption complements the 14.3 cent fuel tax that the Ontario government removed in June, 2002.

"Biodiesel is a non-toxic, cleaner burning, renewable diesel fuel derived from agricultural commodities such as vegetable oils or animal fats. The Ontario Soybean Growers sees biodiesel as an opportunity to create new markets for Ontario soybean oil, while providing a cleaner burning alternative to fossil fuels. In addition, the use of biodiesel fuel is an excellent opportunity for Canada to meet obligations agreed to under the Kyoto Protocol." Address: Chatham, ONT, Canada N7M 5L8.

2864. *Ontario Soybean Growers Newsletter.*2003. The Australian soybean industry. May. p. 5.
• ***Summary:*** "This article was written by Dr. Malcolm Morrison, an Oilseed Physiologist with Ag Canada. He is currently on a study leave in Australia.

"In 2002, Australia produced 70,000 metric tonnes of soybean on 30,000 ha (74,000 acres) of land. Major production areas are in southern Queensland and northern New South Wales, with pockets in other irrigated regions of the country. Soybeans are planted during summer and most production is irrigated. Soybeans are used as a green manure crop in sugar cane, returning 40 to 300 kg/ha (35-267 pounds / acre) of nitrogen, depending on whether the seeds are harvested or the crop ploughed in green.

"Annual Australian demand for soybeans far outstrips national production. The crushing industry imports about 40,000 tonnes of seed and the livestock industry imports up to 360,000 tonnes of solvent extracted meal, mostly from the United States. The baking industry uses another 14,000 tonnes of Australian grown, full-fat soy flour.

"With the drought of 2002-2003, production has dropped by 50%. Farmers have only planted the crops that they could afford to irrigate. This year it was almost as profitable to sell stored water as it was to plant and harvest a field of soybeans. In the irrigated cash crop regions, soybeans are last on the list of preferred crops after cotton, corn, grain sorghum, and sunflowers.

"Phytophthora, white mold, mildew, and soybean rust are major diseases, while insect pests are silverleaf whitefly, green veggie bug, aphids, scale bugs and mites. Plant breeders are developing disease resistant varieties and pest specialists are releasing parasitic insects, and creating viral and fungal biopesticides. Plant breeders are selecting white hilum varieties with good yield, agronomics and natto and tofu characteristics. Many of the new varieties have Canadian parents and are being tested in Asia with favourable results.

"The Australian soybean industry is beginning to target the same high value soyfood markets in Asia that Canada has been focusing on for years. Australia has a 'clean/green' reputation since they do not produce GMO food crops. They intend to capitalize on this image to capture food grade soybean niche markets in the near future. Producing an assured supply of high quality, non-GMO soybeans will be a challenge in the Australian environment." Address: Chatham, ONT, Canada N7M 5L8.

2865. *Ontario Soybean Growers Newsletter.*2003. Soybean consumption expected to grow. May. p. 5.
• ***Summary:*** "A recently published study from Soyatech states that world soybean production has increased 400% over the last 30 years. Each year, 85% of the total world soybean production is crushed into soybean meal and oil.

"Of this crush, 3.2%, a small but growing portion, is further processed into a variety of soy protein ingredients, such as soy flour, soy protein concentrates and isolated soy proteins. The study also states [predicts] that between 2000 and 2010, the use of soybeans for food use will increase by 72%, which will dramatically increase the per capita consumption of soybeans." Address: Chatham, ONT, Canada N7M 5L8.

2866. *Ontario Soybean Growers Newsletter.*2003. Canadian Soybean Export Association holds annual meeting. May. p. 6.
• ***Summary:*** "The Canadian Soybean Export Association (CSEA) held their 8th annual business meeting recently in Guelph. The following members were elected to lead the association in 2003-2004:

Chair: Brad Richmond, Maple Leaf Foods International

Vice-Chair: Marty Huzevka, Hensall District Co-operative

Past-Chair: Martin Vanderloo, Huron Commodities Inc.

Executive Member: Jim Gowland, OSG

Secretary / Treasurer: Kim Cooper, OSG

"CSEA is a voluntary association of members of the Canadian soybean industry, working to promote exports of Canadian soybeans and soya products into world markets. This year's activities included hosting a group of soybean industry members from Japan, Taiwan and Western Europe, participating in a technical mission to Japan, Taiwan, South Korea and Singapore, and the development of two resources to promote the Canadian soybean industry." Address: Chatham, ONT, Canada N7M 5L8.

2867. *Ontario Soybean Growers Newsletter.*2003. Market scan [Soybean production in Brazil and South America]. May. p. 8.
• ***Summary:*** "Soybean production in Brazil has dramatically increased over the past 30 years. In 1970, Brazil produced 1.3 million tonnes, of soybeans. From 1980-1990, production remained steady at 15.5 million tonnes. Huge jumps in production then occurred, and in 2002 Brazil harvested over 43 million tonnes of soybeans. In fact,

Brazil's soybean production has risen an amazing 3,150% since 1970. By comparison, Ontario's soybean production grew 750% in the same time period.

"So why has soybean production increased so much in Brazil? A number of factors are responsible for this. One is cost of production, which is estimated to be around $6.00 Cdn. per bushel, which includes transportation costs to get the soybeans to a port. Mato Grosso, which is the largest and fastest growing area in Brazil, also has fairly inexpensive land. Prices have doubled in the last two years, but you can still purchase land ready to plant for around $450-900 per acre. Other costs you may be interested in would be Round-up ($3.00 per litre), soybean seed ($15 per bag) and labour ($8 per person per day).

"One area that has always plagued Brazil is their infrastructure, especially when it came to transporting the soybeans from the field to the port. That problem is now being resolved. Millions and millions of dollars are being invested into improving road, rail and water transportation systems. Again, if we look at the Mato Grosso area, it is estimated that when these systems are completed in the next few years, transportation costs will be reduced by 40-50% in that region.

"It is hard for producers here in Ontario to compete with what is happening in Brazil. Regardless of what is happening there, we need to continue to develop niche markets for soybeans. We cannot compete very well on a straight, commodity traded soybean, but we have the producers and the infrastructure to compete in the world of value-added soybeans. If the Ontario soybean industry is to survive, we need to seek out more of the specialty soybean markets and determine how to meet those market needs. This will take a lot of determination and hard work on the parts of producers, industry members and both levels of government.

A table gives soybean production statistics (acres, production in tonnes, yield in bushels per acre) for the top five soybean producing states in Brazil. The production figures are:

Mato Grosso 11,636,700.
Parana 9,478,000.
Rio Grande do Sul 5,579,000.
Goias 4,661,878.
Mato Grosso do Sul 3,278,000.
Brazil total 43,500,000. Address: Chatham, ONT, Canada N7M 5L8.

2868. *Soyfoods Canada Newsletter.*2003. Soyfoods Month promotions a huge success. Spring. p. 1.
• ***Summary:*** "Soyfoods Canada launched its first official public relations campaign in March, timed to promote April as 'Soyfoods Month'. The media campaign served to introduce our 'Soy, Always in Good Taste' recipe booklet and the soyfoods Canada website. Other information supplied to the media was an association profile and a summary of the soyfoods Canada website. Other information supplied to the media was an association profile and a summary of the soyfoods industry in Canada. A complimentary basket of members' products was also delivered with the media kit.

"The response to this initiative was tremendous. From April 1 to May 1, 21 newspapers and e-mail newsletters across the country featured articles on soy. The estimated audience reach for the month of April was 4,051,533 readers across Canada. The following publications helped promote the joy of soy to consumers:" The names of 21 newspapers are given.

"This media exposure resulted in a significant increase in traffic at the Soyfoods Canada website. In the seven months prior to the PR campaign, www.soyfoodscanada.com averaged just four visitors and 118 hits per day. In April, these figures increased to an average of 91 visitors making 2843 hits/day. At the peak of the campaign, up to 360 people a day were visiting the Soyfoods Canada site. We hope to keep people coming back to the site by adding new recipes and information on a regular basis.

"Another result of the Soyfoods Month promotion has been an increase in the demand for 'Soy, Always is Good Taste' brochure; over 800 requests were received in April and May. Feedback on this brochure has been very positive, and several consumers who tried the recipes have sent follow-up notes to Soyfoods Canada commenting on the excellent recipes.

"The consumer interest in new recipes and ideas for using soyfoods has been overwhelming. A second media campaign will hopefully be launched in the fall to build on this momentum."

2869. *Stagnito's New Products Magazine.*2003. "Navigating change" at IFT. June 1. p. 1.
• ***Summary:*** Garden Protein International has reserved booth No. 1325 at this year's Institute of Food Technologists' Annual Meeting and Food Expo, July 12-16 at Chicago's McCormick Place.

Note: This is the earliest document seen (Jan. 2010) that mentions Garden Protein International.

2870. Richmond, Akasha. 2003. McDonalds is now running national TV ads for their Veggie Burger–made by Yves (Interview). *SoyaScan Notes.* June 12. Conducted by William Shurtleff of Soyfoods Center.
Address: Los Angeles, California.

2871. **Product Name:** SoyQuick Iso 85 (Organic Hexane-free Soy Protein Isolate-like Product).
**Manufacturer's Name:** American Health and Nutrition, Inc.

**Manufacturer's Address:** 3990 Varsity Dr., Ann Arbor, MI 48108. Phone: (734) 677-5570.
**Date of Introduction:** 2003. June.
**Wt/Vol., Packaging, Price:** 25 lb bulk.
**How Stored:** Shelf stable.
**New Product–Documentation:** Talk with Cindy Maynard, director of marketing and public relations at AHN. 2003. May 28. They plan to introduce this organic product in June. AHN has the exclusive distribution rights to this product. It is made in Quebec (extruded by a company that has state-of-the-art equipment), and contains 85% protein. Talk with Cindy. 2003. July 18. This product is now on the market. Because it is organic, the FOB price to manufacturers is about $4.20/lb.

Press Release. 2003. March 10. SoyQuick ISO 85 is the "result of a partnership between Oleanergie Co. of Quebec, Canada, and American Health & Nutrition [AHN]. Oleanergie developed the product over 5 years, winning a 1st place award in all of Canada for new products benefitting health, the environment and the economy." It "contains the highest % protein of any organic soy protein concentrate in the world today." It has superb functionality, such as solubility, water absorption characteristics, emulsion and fat binding properties. Since 1992 AHN has specialized in the marketing and processing of Non-GMO Organic and other Non-GMO soybeans and soyfoods ingredients such as soy meal, soy flour, TSP and FSP Fine Soy Powder.

2872. Dominy, Suzi Fraser. 2003. Soybeans for dinner? Animal feed continues to consume the lion's share of the world's soybeans, but a new report suggests that an increasing portion is being utilized for human food products. *World Grain* 21(6):24, 26-27. June. [1 ref]
• ***Summary:*** A new report, titled *Whole Soybeans as Food Ingredients,* by Soyatech Inc., shows that there is a large and growing use of soybeans for human food. The biggest market for such foods is in Asia, but a growing market for soy protein products and soyfoods in the Western world is helping to create a new value-added market for soybeans–beyond crushing.

Worldwide, soybean production has grown more than 300% during the past 30 years; in 2002 it was about 184 million tonnes (metric tons). Today the USA ranks first worldwide in total soybean production, but South America (mainly Brazil and Argentina) will soon pass North America (mainly USA and Canada) as the world's leading soybean producing region.

Each year, on average, about 85% of the world's soybeans are crushed to make oil and meal, about 9% are used to make human foods, and the remaining 6% are used on the farm as feed or seed, or last as waste. The crushing of soybeans yields about 79% soybean meal, 18% crude soybean oil, and 3% hulls and waste. Of the soybean meal, 95% is further processed to make animal feeds; the remaining 5% is processed into various soy protein products such as defatted soy flour, grits, soy protein concentrates, soy protein isolates, and textured soy protein products.

According to the report, the proportion (about 5%) processed into soy protein products has been growing at about 12% a year over the past six years.

Of the roughly 9% of world soybeans that are used whole to make human foods, roughly 95% are used in Asia (with almost 60% of that amount used in China alone).

Since the market is now calling for two kinds of identity-preserved soybeans (those that are not genetically engineered {GE} or have special traits, and GE soybeans that have special processor traits such as modified oils or proteins) the commodity market will continue to fragment for the next 10 years or so. Golbitz predicts that per capita annual consumption of soybeans will grow over 50% worldwide, from 3.1 kg (6.82 lb) in 2000 to 4.8 kg (10.56 lb) by 2010.

2873. Sosland, Morton I. 2003. Upholding suit to end ban on GMOs [editorial]. *World Grain* 21(6):6. June.
• ***Summary:*** The USA, supported by a group of importing and exporting countries, filed a lawsuit in the World Trade Organization (WTO) to challenge the moratorium the European Union first imposed 5 years ago that prohibits imports of GMO that are not properly labeled and traceable back to their origins. Joining in the suit were Canada, Argentina, and Egypt.

2874. Jenkins, David J.A.; Kendall, C.W.C.; Marchie, A.; et al. 2003. Effects of a dietary portfolio of cholesterol-lowering foods vs. lovastatin on serum lipids and C-reactive protein. *J. of the American Medical Assoc.* 290(4):502-10. July 23. [51 ref]
• ***Summary:*** This study compared the Portfolio eating plan with cholesterol-lowering drugs and found that both achieved the same LDL-lowering results. Subjects on the Portfolio eating plan (which contains added plant sterols and viscous fibers) also lowered their C-reactive protein levels, an indicator of inflammation in the arteries and a risk factor for heart disease.

Most dietary changes result in modest cholesterol reductions of 4-13%. Diet has come to be considered by some a relatively ineffective therapy. In contrast, statins "repeatedly have been shown to reduce mean serum low-density lipoprotein cholesterol (LDL-C) concentrations by 28% to 35% in long-term trials, with corresponding reductions in cardiovascular death of 23% to 32% in both primary and secondary prevention trials." Address: 1. M.D., Clinical Nutrition and Risk Factor Modification Center, St. Michael's Hospital, 61 Queen St. E., Toronto, Ontario, Canada M5C 2T2.

2875. Montaigne, Fen. 2003. Everybody loves Atlantic salmon: Here's the catch... As wild populations falter and salmon farms go global, this noble sport fish has turned into the chicken of the sea. *National Geographic.* July. p. 100-23.

• ***Summary:*** Where have all the salmon gone? Before the industrial age, at least ten million Atlantic salmon *(Salmo salar,* the "leaper" in Latin) once spawned each year in every river in New England and around the Atlantic Ocean, jumping rapids and waterfalls as it swam upstream. Then came the industrial revolution, with its dams and pollution that rendered many ancient salmon rivers uninhabitable. Conservationists fought back and by the late 1990s most commercial nets had been purchased and retired. People waited for a rebound in salmon numbers–but so far they have been disappointed. Wild Atlantic salmon populations are now about 3.5 million–half of what they were 30 years ago. In the United States, whose rivers once teemed with nearly half a million Atlantic salmon, there are now only a few hundred.

But wild Atlantic salmon have been in steep decline for decades, and today they are rapidly being replaced by about 50 million farmed Atlantic salmon which "swim round and round in pens as they are fed pellets to speed their growth, pigments to mimic the pink hue of wild salmon flesh, and pesticides to kill the lice that go hand-in-hand with an industrial feedlot." The new industry, with 2 billion dollars a year in sales, produces 2.6 billion pounds of fish and is largely controlled by a handful of multinational corporations. The industry, still dominated by Norwegian firms, spread to the UK and Canada in the 1970s and to the USA in the 1980s. Some 800,000 of these once-noble creatures may be packed into one nylon net cage, where they can find no outlet for their strength; the cage and soon the shallow estuary around it is polluted with their defecation. We have bent them to the will of man; it is completely unnatural and very sad to see.

These salmon are now widely sold in markets for $5 a pound. Farmed salmon now outnumber wild salmon about 300 or 400 to one. Norway has the largest population of wild salmon; some 600,000 of them migrate up the nation's 650 salmon rivers to spawn. And it was in Norway in the late 1960s that Atlantic salmon farming began as a cottage industry.

But there is now growing evidence that Atlantic salmon raised in pens using aquaculture threaten their wild relatives. Many experts believe aquaculture is the single most serious threat to the survival of Atlantic salmon, because the sea lice escape from the net cages and attack the wild salmon.

2876. *Ontario Soybean Growers Newsletter.*2003. Farewell to the *Ontario Soybean Growers' Newsletter.* July. p. 1.

• ***Summary:*** This newsletter will disappear at the end of this year. Like so many others, it will migrate to the Internet, to the OSG website, www.soybean.on.ca. Beginning in September, a monthly one-page bulletin will also appear in the *Ontario Farmer.* Or you can subscribe by e-mail at the OSG website by adding your name to the OSG newsletter list. Finally, OSG operates a telephone market service.

Note: The online newsletter that replaced this excellent 8-page printed one was a very poor substitute; it was only 1 page long, took a long time to download, and then the type was too small to read.

Talk with Lisa McClain, new full-time communications manager at OSG. 2004. Oct. 28. The printed version, sent to about 25,000 people, mostly soybean farmer members, was just too expensive. Lisa writes the 1-page newsletter, then OSG buys 1 page of space in *Ontario Farmer* magazine, where it is printed. The magazine does the layout and design, which is why the type is so small. Feature stories will also appear occasionally in *Top Crop Manager* and simultaneously on the OSG website. The most recent one is about food-grade soybeans. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2877. *Ontario Soybean Growers Newsletter.*2003. Soyfoods promoted in April. July. p. 3.

• ***Summary:*** "Soyfoods Canada launched its first official public relations campaign in March, timed to promote April as Soyfoods Month. The media campaign served to introduce the *Soy, Always in Good Taste* recipe booklet and the Soyfoods Canada website. The response to this initiative was tremendous." Over 800 requests for the recipe booklet were received in April and May. OSG is a member of Soyfoods Canada. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2878. *Seedling (Quarterly Newsletter of Genetic Resources Action International, Barcelona, Spain).*2003. Blinded by the gene (Editorial). July. p. 1-5. [7 footnotes]

• ***Summary:*** One of the most interesting articles seen on genetic engineering, it undercuts the foundations of Watson & Crick's 50-year-old "Central Dogma"–which is still the backbone of molecular biology and the basis on which today's multi-billion dollar genetic engineering industry is built. Today we have "pigs with genes from cows producing bovine growth hormone, plants with genes from bacteria producing natural pesticides, and bacteria with human genes to produce insulin. So if the trick works, what is the problem? The problem is that the trick doesn't work. Or at least not the way it should."

In 2001, when the first draft of the human genome was finally published, scientists were surprised to discover that it contained about 30,000 genes, "less than one-third of the number originally calculated to take into account of the number of different proteins and inherited traits that humans

have." If we have more proteins than genes, what instructs the building of proteins that do not have a corresponding gene? The only logical conclusion is that each gene is responsible for a whole range of different proteins and traits and/or that other regulator mechanisms exist in protein production. Recent research has shown that both these conclusions are true." Proteins even feed back information to DNA, and parts of DNA (arrogantly called "junk DNA") "produce molecules that interfere with protein production and are therefore an essential part of the cell's regulatory system." Much recent research has led to the death of the "Central Dogma," but "genetic engineering... only makes sense if you believe in the sole supremacy of DNA, in the dominance of the gene. It only makes sense if you discount all other scientific observations which complicate the hereditary process as interesting but irrelevant." Thus the "mounting evidence that questions the simplistic 'one gene, one trait' logic is still being ignored by the majority of the scientific establishment.

"At the time that Watson and Crick published their findings, the vast majority of plant breeders were working in the public sector. This situation has drastically changed in the past few decades. By the mid-1990s in the US, there were twice as many plant breeders active in the commercial sector than in universities and government agencies combined. This imbalance is fast shifting towards the private sector." Today a small number of corporate giants–Monsanto, Syngenta, Bayer, and Dupont–control the bulk of all commercial crop research and development." There is an ever-widening gap between the worlds of plant breeding and genetic engineering; "plant breeders are becoming an endangered species."

"The adoption of increasingly strict Intellectual Property Rights (IPR) regimes–especially in industrialized countries–has been the crucial enabling factor in this process... Plant variety protection was the death knell for public breeding programmes..."

The gene giants are now arguing that they finally have a great new tool to combat world hunger–genetic engineering. But solving hunger problems has never been the business of powerful transnational corporations and never will be. The International Agricultural Research Centers, the powerhouses behind the Green Revolution, "are now looking for a place to hide in the genetic turmoil." They "risk not only becoming less relevant to farmers in the South, but also becoming part of the problem rather than the solution."

In 2002 only 4 crops constituted more than 90% of commercially grown GM plants: canola, soybeans, cotton, and maize–the bulk of which are being grown for feed or export, not for food. And 90% of these crops are grown in only 4 countries: USA, Canada, China, and Argentina. Most of the GM crops come from Monsanto. Virtually all these crops are engineered for just two traits: resistance to herbicides and incorporation of the toxic Bt gene–a natural insecticide.

We need to go beyond our "genetic myopia" and start dealing with the broad gamut of issues that peasant farmers face. Various impressive success stories are given.

2879. **Product Name:** SoyQuick Iso 90 (Hexane-free Soy Protein Isolate-like Product).
**Manufacturer's Name:** American Health and Nutrition, Inc.
**Manufacturer's Address:** 3990 Varsity Dr., Ann Arbor, MI 48108. Phone: (734) 677-5570.
**Date of Introduction:** 2003. August.
**Wt/Vol., Packaging, Price:** 25 lb bulk.
**How Stored:** Shelf stable.
**New Product–Documentation:** Talk with Cindy Maynard, director of marketing and public relations at AHN. 2003. July 18. They plan to introduce this organic product in August. AHN has the exclusive distribution rights to this product. It is made in Quebec (extruded by a company that has state-of-the-art equipment), and contains 90% protein. is now on the market. Because it is not organic, the FOB price to manufacturers is about $2.00/lb.

2880. *D-brief (e-newsletter).*2003. Customer clips: Saputo Inc. Sept. 17. p. 3.
• ***Summary:*** "Saputo Inc. plans to close two Canadian Milk Division plants and will sell a third, leaving it with 10 fluid milk processing plants in Canada."

Soyaworld, a soy beverage company in British Columbia, will purchase Saputo's Annacis Island, B.C., facility in a deal expected to close by Feb. 2004. Saputo presently co-packs Soyaworld products in that facility.

Note: D-brief is a weekly dairy business e-newsletter produced by DairyField at www.idfa.org.

2881. *The Non-GMO Source (Fairfield, Iowa).*2003. UN biosafety protocol on GMOs takes effect: First international law giving nations the right to regulate imports of GM foods goes into force September 11. 3(9):8. Sept.
• ***Summary:*** Fifty nations have ratified the Cartagena Protocol on Biosafety, the first international law regulating genetically modified organisms. Formed under the United Nations Convention on Biological Diversity, it will take effect on September 11. It was first adopted (by 130 nations) in Jan. 2000 in Montreal [Canada], after 4 years of negotiations. It was named after the Colombian city that, in 1999, hosted the meetings to establish the protocol–which seeks to protect biological diversity worldwide and is guided by the "precautionary principle"–which forms the basis of the European Union's regulations on GM foods. The USA believes this protocol creates barriers to international trade, and wants the WTO to supersede the protocol.

2882. Turtle Island Foods, Inc. 2003. No holiday guest left behind–Tofurky and Dumplings set for 2003 (Press release). P.O. Box 176, 601 Industrial Ave., Hood River, OR 97031. 1 p. Oct. 21.
• ***Summary:*** "Hood River, Oregon–Turtle Island Foods, Inc. announced today the introduction of a New and Improved version of its flagship product, Tofurky Vegetarian Feast. This year's changes include: the addition of a full pound of Cranberry-Apple, Potato Dumplings, a new 'Tofu Tender' Stuffed Tofu Roast, a new box with beautiful photos and graphics and a larger, 3.5 lb size for the entire package which retails in natural foods and grocery stores for around $20.

"Tofurky was first introduced in the USA during the Thanksgiving Holiday season in 1995 when 500 Tofurky Feasts were sold. It was the first product that had been marketed to fill the need of what to serve vegetarian guests at one's holiday table. The product has been wildly successful providing an alternative to Turkey for people who otherwise were left out of holiday celebrations. Last year, the company sold 120,000 Tofurkys in the U.S., Canada, and UK. This year, the products are to be offered to such major grocery chains as Safeway on a national level as well as in the natural foods supermarkets where it was the #4 overall selling meat alternative in 2002 despite only being sold in the 4th quarter of the year." Address: Hood River, Oregon.

2883. SunOpta Inc. 2003. SunOpta Inc.–Our new name (News release). Toronto, Ontario. 1 p. Oct. 31.
• ***Summary:*** "SunOpta Inc., the new name of Stake Technology Ltd., became effective today. The new corporate name combines the names of two of the Company's historical operating food groups, the Sunrich Food Group and Opta Food Ingredients. The change reflects the Company's commitment to environmental responsibility and to the natural and organic foods markets.

"The trading symbols of STKL on NASDAQ and SOY on the TSX (Toronto Stock Exchange) will remain the same."

"SunOpta Inc. is an owner / operator of high-growth ethical businesses, focusing on integrated business models in the natural and organic food markets. For the last five consecutive years, SunOpta was included in Profit magazine's 'Profit 100' list of the 100 fastest growing companies in Canada. The company has three business units:" the Food Group, the Environmental Industrial Group, and the Steam Explosion Group. Address: Toronto, Ontario.

2884. *Iowa Soybean Review (Iowa Soybean Association, Urbandale, Iowa).*2003. Top U.S. customers received assistance. 15(1):15. Oct.
• ***Summary:*** Every one of the top ten U.S. soybean customers was once a recipient of some type of U.S. foreign assistance. "Today these nations are powerful U.S. trade partners. A table shows export value in millions of U.S. dollars."

Whole soybeans: European Union $1,167 million. China $1,012. Mexico $755. Japan $724. Taiwan $385. Indonesia $245. Korea $226. Canada $130. Thailand $115. Israel $95.

Soybean meal: Canada $200 million. Indonesia $167. Philippines $138. Dominican Republic $71. Turkey $62. Saudi Arabia $59. Japan $59. Mexico $50. Egypt $49. Thailand $44. Source: U.S. Department of Commerce.

2885. Steed, Judy. 2003. Percy Schmeiser vs. Monsanto reaches Canada's Supreme Court early next year. *Toronto Star (Ontario, Canada).* Nov. 12.
• ***Summary:*** This case, which is expected to be heard in Ottawa, Canada, in Jan. 2004, is a classic David vs. Goliath match-up. Percy Schmeiser, age 73, is a lone farmer from Bruno, Saskatchewan, a town of about 640 people some 90 km east of Saskatoon. For decades, he has selected and crossbred his own canola seed to thrive in the unique conditions of his family farm. Following an age-old tradition, he exchanged seeds with other farmers, shared what he was learning, and contributed to biodiversity. He never took out a patent on the seeds he developed. The trouble began when Monsanto's Roundup Ready canola appeared (unwanted, called "volunteers"), in Schmeiser's fields. Schmeiser did not spray Roundup on his crop, because it would have killed his heritage canola seeds. The next spring Monsanto came calling. Schmeiser didn't buy the unwanted canola seeds and he didn't sign a "technology use agreement" (TUA). In fact, he suffered injuries, because Monsanto's seed contaminated his own. In most cases, Monsanto settles these cases out of court, but Schmeiser decided to fight. In June 2000, the case went to Saskatoon federal court; Schmeiser lost. He appealed in May 2002 and lost again–which cost him big money, including $153,000 to Monsanto for court fees. With most infringing farmers, Monsanto settles out of court, and the money from such settlements goes into charities, not to corporate revenues. For the last five years, his life has been consumed by court battles, constant fund-raising, traveling and speaking.

Monsanto, founded in 1901 in St. Louis, Missouri, was built on saccharine, caffeine, and aspirin.

The Saskatchewan Organic Directorate (SOD), comprised of about 1,100 organic farmers, says it can no longer grow certified organic canola because even the pedigreed seed stock has been contaminated by Monsanto's GE Roundup Ready canola or Bayer's GE Liberty Link canola. SOD has launched a class action lawsuit to get compensation for this loss and to get an injunction to stop GE wheat.

2886. Brown, Reg. 2003. Back to the beginnings: 3. *Record (SDA, Victoria, Australia)* 108(47):8-9. Nov. 29.
• ***Summary:*** "This article continues a series on the history of the Adventist Church in the South Pacific." In 1897, Edward Halsey, one of Dr. John Harvey Kellogg's bakers at the Battle Creek Sanitarium, Michigan, arrived in Melbourne, Australia, and began manufacturing Granola, caramel cereal (a coffee substitute), and peanut butter. "The Sanitarium Health Food Company was registered as a business on April 27, 1898." On the advice of Ellen G. White, the health food factory was moved to Cooranbong, NSW, to be near the newly established school at Avondale.

Sanitarium Foods is the soymilk market leader in Australia. Its flagship product, So Good, enjoys almost 50% of the market share, and is also the leading brand in New Zealand, the UK, and Canada. So Good was developed at Sanitarium's laboratory at Cooranbong. "In 2002 Sanitarium purchased a Canadian company, Soyaworld, which gives it 60 per cent of the Canadian [soymilk] market." Address: Australia.

2887. Boyte, Frances. 2003. Tofu gourmet cuisine: Delicious recipes from the four corners of the world. Translation of Le Tofu International, by Ed and Marilyn Bell. Burlington, Ontario, Canada: Dillon Publishing Co. 119 p. Illust. (color photos). Recipe index. 27 cm.
• ***Summary:*** Most of the recipes (more than 100) in this book were developed by four professional restaurant chefs; the name of the chef is given below each recipe name: Éric Boutin, Sébastien Leblond, Benoît Paquet, and José Trottier. The name of the country, a quotation, and symbols for the degree of difficulty and cost are also given for each.

Contents: Acknowledgements: One great book–One great team. A note from the author. Part I: Tofu gourmet cuisine. The art and tools of making tofu. How to make homemade tofu. What is tofu? Its history, varieties, ready to eat tofu, where do we got tofu, how to store tofu. Tofu and health: The soybean, and now–tofu, you should be aware that..., what to make of those nutritional values, fat and cholesterol, minerals and vitamins, calories, other characteristics of tofu, one last word! The chefs and Francis Boyte: Biographies.

Part II: Tofu: Gourmet cuisine. The appetizers. The soups. The salads. The main dishes. The sauces and accompaniments. The breads and scones. The desserts and chilled drinks. Acknowledgments / appreciations. Recipe index (Alphabetical list of recipe names). Words of praise for the book and a color photo of the author appear on the rear cover. Address: Les Ateliers diététiques de Frances Boyte, 825, avenue Beauregard, Bureau 117, Sainte-Foy (Quebec), Canada G1V 4L7.

2888. Hain Celestial Group, Inc. (The). 2003. Annual report 2003: 10 years of changing the way the world eats. Melville, New York. 32 p. Nov. 28 cm.
• ***Summary:*** Marks the company's 10th anniversary with a nice chronology: "1993. Irwin Simon forms 21 Century Foods with the Farm Foods brand. We acquire Kineret Foods, a specialty kosher brand. Our name becomes Kineret Acquisition Corp. and we sell 1 million shares and warrants in an initial public offering at $3.25 per unit. We are listed on NASDAQ under the ticker symbol NOSH. The FDA issues its Nutrition Labeling and Education Act (NLEA), regulations establishing general requirements for health claims and food labeling.

"1994. We acquire Hain Pure Food Co. and Hollywood cooking oils from PET Inc. We change our name to The Hain Food Group, Inc. Our ticker symbol is changed to HAIN. Sales in our first full year are $14 million." 1995. Sales grow to $58 million. 1996. Sales reach $69 million.

Net sales for the year ended 30 June 2003 were $466.459 million, up 18% from $395.954 million in 2002. Net income in 2003 was $27.492 million, way up from $2.971 million in 2002. Many new products containing soy in the product name are pictured and described incl. Imagine Organic Broth [California Miso or Soy Ginger], Westsoy Soy Slender. Lima Soya Drink.

Accompanying the annual report is a "Notice of Annual Meeting of Stockholders and Proxy Statement" (33 p.). Irwin Simon, the founder and CEO, age 45, had the following annual compensation: Salary: $643,077. Bonus: More than $175,000. Other compensation: $16,000. Stock options: 600,000 shares. Note: The value of the company's stock has decreased for the last 3 years in a row. Address: 58 South Service Road, Melville, New York 11747. Phone: 516-237-6200.

2889. Jenkins, D.J.; Kendall, C.W.; et al. 2003. The effects of combining plant sterols, soy protein, viscous fibers, and almonds in treating hypercholesterolemia. *Metabolism* 52(11):1478-83. Nov. *
• ***Summary:*** Jenkins' team has found new ways of achieving dramatic cholesterol-lowering effects through diet. In this study, 25 healthy hyperlipidemic individuals were put on a dietary plan (Portfolio eating plan) which included 30 gm of almonds, 2 gm of plant sterols (from enriched margarine), 15 gm of viscous fibre (from foods such as oats, barley, eggplant, or okra), and 35 gm of soy protein (from foods such as tofu, soymilk, or soy meat alternatives). The diet reduced their LDL cholesterol by 35% in two weeks. Address: Univ. of Toronto, Canada.

2890. *SoyaScan Notes.*2003. Chronology of major soy-related events and trends during 2003 (Overview). Dec. 31. Compiled by William Shurtleff of Soyfoods Center.

• ***Summary:*** Jan. 13–DuPont and Bunge announce an important partnership that includes the creation of a stand-alone ingredients company, Solae, and alliances in agricultural production and biotechnology.

April 1–Solae officially begins operations, owned by DuPont (72%) and Bunge (28%). To the partnership, DuPont contributed its Protein Technologies International business and Bunge contributed its North American (Central Soya and CanAmera Foods) and European soy ingredients operations. At about that same time, for marketing purposes and from the public's viewpoint, "Protein Technologies International" and "Central Soya" (pioneering and venerable business names in the soyfoods industry) were quietly and unceremoniously "disappeared."

April–The 63-year-old name of *Soybean Digest* is changed to *Corn and Soybean Digest.* The subtitle on the cover now reads: "Maximizing production and marketing for profit." The magazine also has new graphics and a new look.

April 26–Soyfoods Center and H.T. Huang, PhD (an expert on the history of food and agriculture in China) finish a two-year project to translate into English all known passages that mention soy in the Chinese literature from 1100 B.C. to 1923–from 236 different documents–and to make this information available in electronic form in the SoyaScan computerized database.

May–Bunge sells its Brazilian soy ingredients operations (Samrig Division of Santista Alimentos) to Solae for $251 million in cash, realizing a tax-free profit of $111 million on the sale.

July 9–FDA and U.S. Department of Health and Human Services announce that the trans-fatty acid content of all packaged foods sold in retail stores (but not in restaurants) must be listed on the "Nutrition Facts" portion of food labels starting 1 Jan. 2006. "Trans fats," like saturated fats, are considered "bad fats" which contribute to heart disease and obesity. Trans fats rarely occur naturally; they are created by hydrogenation of vegetable oils–including soy oil.

Oct. 31–Stake Technology Ltd. (of Canada, which owns SunRich) changes its name to SunOpta.

Trends: (1) Soybeans are starting to be seen as an enemy of the environment, especially in Brazil where they are expanding onto and leading to deforestation of environmentally precious or sensitive land, as in tropical rain forests, as world demand for high-protein feeds to produce animal products (meat, poultry, and fish)–especially in China.

(2) The FDA decision on labeling of trans fatty acids will clearly lead to a rush (by both private and public soybean breeders) to develop soybean varieties whose oil is low in linolenic acid and therefore does not have to be hydrogenated. These specialty soybeans, which will be grown on at least a million acres, will have to produced and marketed using the "identity preserved" system rather than the traditional "commodity" system. This change will probably transform the way all soybeans are handled in America. Today only organically grown, non-GE (non-GMO), and specialty soybeans are identity preserved.

2891. FBX. 2003. Soyfoods Summit: February 18-20, 2004. Hyatt Regency La Jolla, San Diego, California. www.foodbevx.com (Brochure). Little Falls, New Jersey: IQPC. 12 p. 28 cm.

• ***Summary:*** This brochure begins: "The Food & Beverage Exchange is proud to present its 7th Annual Soyfoods Summit." In association with Soyatech. Media partners: Nutrition Business Journal, The Soy Daily, Nutraceuticals World. The conference, which is being organized by The Food & Beverage Xchange, a division of IQPC (London, England), will have two separate tracks of presentations: (A) Technology & applications, and (A) Health benefits of soy. Summit chairs: Peter Golbitz, president, Soyatech, is chair of track A. Geri Berdak, Director, Public Affairs, The Solae Company, is chair of track B.

The facts: (1) "The US Soyfoods market has grown at an average annual rate of 14% per year for the past ten years and hit $3.65 billion in 2002." (2) "Per capita soy consumption will rise by 50% in the next 5 years." The main speakers, with their organization, track, an outline of their talk, and a small photo are given. Track A: Dr. Jonathan F. Gordon, Firmenich Inc. Hiraoki Iwamoto, Tendre Corp., Japan (frozen tofu). Phil Fass, ADM. Dr. Michael Shemer, Tivall Corp., Israel. Motohiko Hirotsuka, Fuji Oil Co Ltd, Japan. Brad Strohm, Wenger Manufacturing Inc. Mian Riaz, Texas A&M University. KeShun Liu, Univ. of Missouri at Columbia. Victor Braverman, Braverman & Associates, Mexico. Jorge Arturo Canas Diaz, Central Heledra Diaz, Costa Rica.

Track B: Milagros Virginia C. Lim, Nestle Philippines Inc, Philippines. Mark Messina, Nutrition Matters Inc. John L. Williams PhD, Univ. of South Dakota. Prof Fujian Yang Zhenhua 851 Bio-Science Co Ltd, China. Omer Kucuk M.D., FACN, Wayne State Univ., Karmanos Cancer Inst. Helen Kim PhD, Univ. of Alabama at Birmingham. Prof. Mindy S. Kurzer, Univ. of Minnesota. Dr. Ari Babaknia, DrSoy. Wendy Barrett, Eat Smart. Deborah Miller, The Solae Group.

Day 1–General session at end of day: John A. Schillinger, PhD, Heartland Fields, LLC. Peter Hannam, First Line Seeds.

Day 2–General session running all day: Paul Lang, Natural Products Inc. Seth Tibbott, Turtle Island Foods. Tom Woodward, Tetra Pak, Singapore. Ted Nordquist, WholeSoy Co. Hsien-Hsin Chang, Lightlife Foods. Gerard Klen Essink, Prosoy Research & Strategy, The Netherlands. Frank Daller, Soyadairy, Canada. Daniel Burke, Pacific Soybean & Grain. Garnet Pigden, The Solae Company.

Gerry Amantea, Hain Celestial Group Inc. Johanna McCoy, Soy Happy. Kim C. Kristoff, Gemtek.

Post-conference interactive workshops: Tim Redmond, formerly with American Soy Products. Patricia Godfrey & Danielle Karleskind, Cargill Soy Protein Solutions. Peter Golbitz, Soyatech.

For those who register and pay in full by Dec. 5, the Gold Package of conference plus three workshops the price is $2,999. By Dec. 31 it rises to $3,099. By Jan. 9 it rises to $3,199. After Jan. 9 the full price is $3,299. This does not include lodging and food. The price is $1,299 for those who register by Aug. 1, but $1,599 after Sept. 15.

Note: Talk with two people who will speak at this conference. They are paid no honorarium for speaking, and they must pay their own transportation both ways and all room and board expenses while at the conference. Why do they go? Both say this gives them an opportunity to attend the conference free of charge, to have a nice vacation in a warm and beautiful part of California, and to meet now people and promote their ideas and (informally) their products.

2892. *Ontario Soybean Growers Newsletter.*2003. Ontario Soybean Growers' office relocating to Guelph. Dec. p. 1.
• ***Summary:*** The move is scheduled to occur in the spring of 2004; an office location has not yet been determined. "OSG has been considering a move to Guelph for several years. With the government, the University of Guelph, ag-related private industry, and other farm organizations all located in Guelph, the area has become the hub of agriculture in Canada. 'The increased opportunities to interact with government and work closely with other organizations will serve our growers well in the dynamic years to come,' says Bill Allison, Chair of the OSG." Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2893. *Ontario Soybean Growers Newsletter.*2003. Ontario Soybean Growers: Auditor's report and financial statements. Dec. p. 3-7.
• ***Summary:*** Contents: Balance sheet. Statement of operations and accumulated surplus. Statement of cash flows. Notes to financial statements.

Assets in 2003 were $3.199 million (Canadian), up from $2.609 in 2002. Income in 2003 was $1.868 million, with most of that coming from "License fees." Expenses in 2003 were $1.741 million; the three main expenses were salaries ($443,045), research projects (see note 7; research grants and market research grants) ($318,500), and professional dues ($112,789).

Note: This is the list issue of this excellent newsletter. What a shame. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

2894. Farnworth, Edward R. 2003. Handbook of fermented functional foods. Boca Raton, Florida: CRC Press. 390 p. See p. 227, 295. Index.
• ***Summary:*** An overview, with two chapters on fermented soyfoods (natto and miso) cited separately. Chapter 1, titled "History of fermented foods" (p. 1-25) includes brief and vague histories of "Soy foods" including (p. 18-19) soy sauce, miso, tempeh, natto, and sufu [fermented tofu].

Chapter 4, titled "Kefir: A fermented milk product" (p. 77+) states (p. 85-86) that kefir can be made by growing kefir grains in soybean milk (Abraham and de Antini 1999, p. 327-33).

Chapter 9 is "Natto–A food made by fermented cooked soybeans with *Bacillus subtilis (natto),"* (p. 227-245).

Chapter 11 is "Miso: Production, properties, and benefits to health" (p. 277-87). Chapter 12 is "Korean fermented foods: Kimchi and doenjang" (p. 287-305). Address: PhD, Senior Research Scientist, Food Research and Development Centre, Agriculture and Agri-Food Canada, St. Hyacinthe, Quebec, Canada.

2895. Food and Agricultural Organization of the United Nations. 2003. Soybeans: Area harvested, yield, and production. *FAO Yearbook–Production (Rome, Italy)* 57:115-16.
• ***Summary:*** The 2003 Production Yearbook, under "Soybeans" (p. 115-16, in English, French, and Spanish) gives area harvested (1,000 ha), yield (kg/ha), and production (1,000 metric tons), each for the years 1989-91, 1995, 1996, 1997, for the following places: World. Africa: Benin, Burkina Faso, Burundi, Congo–Democratic Republic, Cote d'Ivoire, Egypt, Ethiopia PDR, Ethiopia, Gabon, Liberia, Madagascar, Morocco, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zambia, Zimbabwe.

North and Central America: Belize, Canada, El Salvador, Guatemala, Honduras, Nicaragua, Panama, USA.

South America: Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru, Suriname, Uruguay, Venezuela.

Asia (fmr = former). Asia: Azerbaijan, Bhutan, Cambodia, China, East Timor, Georgia, India, Indonesia, Iran, Iraq, Japan, Kazakhstan, Korea–Democratic People's Republic of (north), Korea–Republic of (south), Laos, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Syria, Tajikistan, Thailand, Turkey, Viet Nam (Vietnam).

Europe (former). Europe. Albania, Austria, Bosnia Herzegovina, Bulgaria, Croatia, Czechoslovakia, Czech Republic, France, Germany, Greece, Hungary, Italy, Moldova Republic, Romania, Russian Federation, Serbia-Montenegro, Slovakia, Slovenia, Spain, Switzerland, Ukraine. Note: Serbia-Montenegro appears for the first time. Harvested 112,000 ha (yield = 2,099F kg/ha) in 1999-2001, 87,000 (yield = 2,369F) in 2001, 100,000 (yield = 2442F) in 2002, and 131,000 (yield = 1,720F) in 2003.

Produced 224,000 metric tons in 1999-2001, 207,000 MT in 201, 244,000 MT in 2002, and 226,000 MT in 2003.

Oceania. Australia.

Note: In this 2003 Yearbook the USSR was not listed for the first time in the history of the publication.

2896. Levenstein, Harvey A. 2003. Paradox of plenty: A social history of eating in modern America. Revised ed. Berkeley, California: University of California Press. ix + 353 p. Index. 23 cm. Series: California studies in food and culture No. 8. [1529* endnotes]

• ***Summary:*** This revised edition is identical to the original 1993 edition except that: (1) The publisher and cover are different. (2) It contains a new Epilogue (which updates the book, p. 256-67) after the last chapter, plus 56 endnotes that accompany it. The index appears to be the same. Levenstein was born in 1938. Address: Prof. Emeritus of History, McMaster Univ., Univ. of Hamilton, Ontario, Canada.

2897. *National Enquirer.*2004. Miracle snack beats heart disease: 'It lowers cholesterol and blood pressure.' Major university studies reveal. Jan. 27. p. 12-13. Cover story.

• ***Summary:*** Written across the top of the cover of this tabloid newspaper: "University studies reveal: Miracle snack beats heart disease."

The article begins: "Forget about salty peanuts and fatty potato chips. The newest snack craze sweeping the nation is nothing less than a miracle food–tasty, crunchy and it fights heart disease too." Dr. David Jenkins (University of Toronto, Ontario, Canada) says that "one terrific way to get your soy is by eating edamame beans." They are easier to digest than mature soybeans and full of disease-fighting nutrients and protein. Mark Messina, PhD (Loma Linda University) says there is "no downside to eating edamame beans." Also cites studies at Wake Forest University school of medicine, New York's Mt. Sinai Medical School, and the University of Alabama. The American Heart Association endorses soy as part of heart-healthy diet.

Sunrich of Hope, Minnesota, a leading grower of edamame, sells 2 million pounds of the miracle snack food a year and can hardly keep up with the demand, which has been increasing by 25% a year.

Photos show: (1) A tray filled with edamame, ready to eat. (2) Aerial close-up of a field of green soybean plants. "Edamame is easy to digest." (3) A barefoot lady in Asia, seated on a step, shelling edamame in a wooden bowl.

2898. Nordquist, Ted. 2004. Looking back: Overview of work with soymilk in America (Interview). *SoyaScan Notes.* Jan. 29. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Jeremiah Ridenour was the first person in the USA to have the idea of selling soymilk in extended shelf life (ESL) gable-top cartons. That was a huge breakthrough. Ted wanted to build a soyplant to produce his soy base in America–ideally in California. Ted met Jeremiah, and Jeremiah told Ted about his idea for using gable-top cartons. Jeremiah took Ted to Gustine, the plant where Ted developed a soymilk product for Jeremiah using Ted's proprietary formulation. He sent many samples to Jeremiah, on the understanding that Jeremiah would use his distribution to sell the new product. After the product was developed, Ted did a feasibility analysis, which showed that he had to produce about 4,000 cases (at 3 gallons per case) to make this a competitive, viable product. Jeremiah said he was unable to buy and sell that much volume–including the big initial cost of buying and printing the cartons. Then Ted took the idea to Westbrae (to Myron Cooper–who said "sorry"), and then to Steve Demos of White Wave; Steve had refrigerated distribution, saw the product's potential, and was very interested. "You have to give Steve all the credit for selling the product." Ted still did not have a plant that could make his soybase. So Ted bought ProSoya's soybase made at the ProSoya plant in British Columbia, had it shipped by tanker trucks to Gustine, where Ted formulated it, had it packaged in White Wave's ESL cartons, then shipped the finished cartons in cases to White Wave. White Wave paid for the carton's plates and developed the graphics, but Ted had to pay to print the packaging on the ESL stock. White Wave paid for the product (incl. the package) after he received it. Ted make Silk soymilk for Steve for two years. At the end, Steve ordered $320,000 worth of product and refused to pay for it. Ted thinks that he used that money to move to Utah.

Gary Stein was making tofu for Trader Joe's. Trader Joe's was also buying soymilk in fresh (not ESL) cartons from Rockview Farms–Trader Joe's distributor. Rockview bought its soymilk in bulk from a guy in Los Angeles, who set up his own Alfa Laval plant to produce soybase and to formulate it for Rockview. Ted does not remember the guy's name but he was only up and running for several years. One day Gary called Ted and explained that Rockview Farms was having all kinds of problems with their soymilk, and that Trader Joe's had called Gary and asked him if he could produce soymilk for Trader Joe's. At this time, Ted was still selling Silk soymilk to White Wave–but he was feeling tension in the relationship. Ted's contract with White Wave said that Ted could not sell soymilk packaged in gable-top cartons out of Gustine. Ted adhered to the contract. But by this time Ted had his first soybase plant up and running at Soyfoods of America in Duarte, near Los Angeles, California. So instead of buying soybase from ProSoya, Ted was now making his own in California. Gustine bought the packaging, Gary Stein formulated Ted's soybase to make soymilk, Ted packaged it in Gustine, then Gary sold it to Trader Joe's; they split the profits 50:50.

In April 1999, Ted's WholeSoy Co. launched WholeSoy: Creamy Cultured Soy, a Swiss-style soy yogurt

in four flavors; he sold it to Trader Joe's through Gary Stein; Ted and Gary split the profits 50:50. Ted did not sell his yogurt direct to Trader Joe's because he is friends with Gary. "I don't do things like that. Our relationship with Trader Joe's was through Gary Stein. So I honored that." Gary got Ted's yogurt into Trader Joe's. But a year or so later, Ted and Gary agreed that the arrangement was getting too complicated, and that Gary would take the soymilk (packed in Gustine) and Ted would take the yogurt. So Ted now sells his soy yogurt and a 96-ounce soymilk directly to Trader Joe's. Gary Stein is still making soy products for Trader Joe's. Gary no longer works much at his soy plant, which is run by his employees; he is often at Lake Tahoe or skin diving. "More power to him."

Jeremiah did not start selling soymilk in ESL packages until after Steve stopped buying soymilk from Ted. Address: TAN Industries, Inc., 49 Stevenson St., Suite 1075, San Francisco, California 94105-2975; 660 Vischer Ct., Sonoma, CA 95476. Phone: 415-495-2870.

2899. *Ontario Soybean Growers Soybean Report.*2004—. Serial/periodical. Chatham, ONT, Canada. OSG: Jan. 2004.
• ***Summary:*** This monthly electronic 1-page newsletter (no longer printed or mailed) replaces the much higher quality, 8-page *Ontario Soybean Growers Newsletter.* It has a red border. No address is given for OSG, however their phone and fax numbers, and their e-mail are given. No volume or issue numbers are given. What a shame. Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

2900. Dietz, John. 2004. Soybeans march way north: Is Manitoba, Canada, the soybean's new frontier? *Corn and Soybean Digest.* Mid-Feb. p. 31-32.
• ***Summary:*** Note: Most of the soybeans grown in Manitoba are grown in the far south of the province in the Red River Valley. The Red River (also known in the USA as the Red River of the North to distinguish it from the river that forms part of the border between Texas and Oklahoma) originates in the United States and flows northward through the Red River Valley. It empties into Lake Winnipeg, whose waters join the world's oceans in Hudson Bay via the Nelson River. The Red River flows through several urban areas along its path including Fargo-Moorhead and Greater Grand Forks in North Dakota (USA) and Winnipeg in Canada.

Soybeans are a relatively new crop in Manitoba, made possible largely by plant breeders who breed soybeans for latitudes in the far north (as in Quebec and Ontario), but also by better soil inoculants–which contain higher numbers of bacteria, more protein, and use stickers and sterile peat to produce better nodulation.

Twenty years ago, a few Manitoba farmers tried growing soybeans but gave up on the crop because of low yields, low prices, and low protein content. In 1996 a few growers in the Red River Valley of Manitoba, near the Canadian border, successfully planted 800 acres. The province's soybean acreage increased to 40,000 acres in 2001, then to and 120,000 acres in 2002, and (most recently) to 220,000 acres in 2003 (a whopping 83% increase over the previous year).

A color photo shows Blye and Don Sissons who planted 300 acres of soybeans last year on their farm at Portage la Prairie in the Red River Valley–50 miles due west of Winnipeg, Manitoba.

2901. *Soyfoods Canada Newsletter.*2004. Soyfoods Canada member profile: SunOpta. Winter. p. 3.
• ***Summary:*** "The Sunrich Foods Group is a global supplier of Identity Preserved and Organic soy, corn and rice products. From ingredients to consumer packaged products, we help out customers create great tasting foods, naturally. The Sunrich Food Group is made up of four operating divisions–Sunrich, Nordic Aseptic, Northern Foods and Dairy and Hearty and Natural.

"Founded in 1978, the Sunrich grain division is a fully integrated producer, supplier and ingredient developer for the food industry. Based in Minnesota, Michigan and Ontario, we are in the best position to both produce and supply Identity Preserved (IP), Non Genetically Modified (Non-GMO) and organic grain based food ingredients.

"Nordic Aseptic is an aseptic packaging facility with a focus in private label manufacturing. The facility specializes in Tetra Pak slim, square, wedge and Combi Bloc packages, with a variety of opening types. The extended shelf life and logistical benefits of aseptic packaging make it one of the fastest growing delivery vehicles for liquid products."

"Hearty and Natural is the consumer products division of the Sunrich Food Group. Consumer products edamame, veggie burgers, frozen soy vegetables and functional foods.

"The Sunrich Food Group is a wholly owned subsidiary of SunOpta (formerly Stake Technology). SunOpta owns and operates high-growth ethical businesses, focused on environmental responsibility and the health and well-being of its communities. SunOpta's Food Group is well positioned in the rapidly growing natural and organic foods sectors through its vertically integrated operations throughout North America."

2902. *Soyfoods Canada Newsletter.*2004. Soy industry news. Winter. p. 3.
• ***Summary:*** "After 80 years in business, W.G. Thompson and Sons Ltd., a supplier of food-grade quality soybeans to the soyfoods industry, announced in January that it has shortened its name to Thompsons Limited."

2903. *The Non-GMO Source (Fairfield, Iowa).*2004. Taiwan's demand for non-GM and organic soybeans increasing. 4(2):3. Feb.

• ***Summary:*** Taiwan has a large market for soybeans for food use, estimated at 225,000 tons. Most of the soybeans are used to make tofu and soymilk. In 2002/03 about 7,500 tonnes (metric tons) of the food-use soybeans came as identity preserved, non-GM "food grade," and organic. Of this total the USA supplied an estimated 4,500 tonnes, Australia 2,000 tonnes, Canada 500 tonnes, and all other countries combined 500 tonnes.

2904. Brown, Allan; Brown, Susan. 2004. Tempeh tofu and other new developments (Interview). *SoyaScan Notes.* March 20. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** They recently had a visitor who makes "tempeh tofu" commercially in Australia. Tempeh is probably pasteurized then crumbled and added to the tofu curds before they are pressed into tofu. When you slice the tofu, there is a marbled effect with tempeh in the middle. The visitor is sending Allan the labels. "What a great, original idea!" It is widely distributed and Australians love it because it has more flavor than tofu and it is not as heavy as tempeh."

In Vancouver, BC, a company named Gaia Enterprises Inc. makes natto and sells the spores. Noble Bean has been thinking about making natto, but Shurtleff warns against letting natto spores (a strong contaminant) get near tempeh.

Two years ago, Soy City Foods joined with another company, Second Nature, to become Sol Cuisine. They still make lots of good tofu but they have stopped making tempeh; they made only okara tempeh (to add value to the okara left over from making tofu) and only for the institutional market (mostly university cafeterias). The nutritional profile and consistency were both poor. Sol Cuisine is using certified organic soy isolates to make meat alternatives (incl. ground round, hot dogs, etc.), thereby challenging Yves, which uses regular isolates–perhaps made using hexane. The sales manager at Sol Cuisine is a close friend of Allan and Susan's from The Farm. Sol Cuisine wanted Noble Bean to private label tempeh for them. Allan now wants to talk with them about making "tempeh tofu."

The Farm in Summertown, Tennessee, is now a good, reliable source of tempeh spores. Noble Bean gets all its tempeh spores from the Farm.

Sooke Soyfoods has become Green Cuisine in British Columbia; established in 1989, they have a vegan restaurant and also make a line of soyfood products. Address: Founders, Noble Bean, R.R. #1, McDonalds Corners, ON K0G 1M0 Canada. Phone: 613-278-2305.

2905. Desroches, Sophie; Mauger, J.; Ausman, L.M.; et. al. 2004. Soy protein favorably affects LDL size independently of isoflavones in hyperchlesterolemic men and women. *J. of Nutrition* 134(3):574-79. March. [34 ref]
• ***Summary:*** Soy is shown to reduce blood levels of homocysteine, which is a marker for cardiovascular problems. Address: Institute on Nutraceuticals and Functional Foods, Laval Univ., Set-Foy, Quebec, Canada.

2906. Institute of Food Technologists. 2004. The IFT exhibitor list: (as of March 2004) (Web article printout). http://www.allbusiness.com/manufacturing/food-manufacturing/160210-1.html. 25 p. Printed 2008 May 29.
• ***Summary:*** One of the companies planning to exhibit at the IFT convention is Garden Protein International (p. 4).

2907. *Nutrition Business Journal (San Diego, California).*2004. Eden Foods maintains independence in a consolidating industry. 9(3):18. March.
• ***Summary:*** A good interview with Michael Potter about the history and organic philosophy of Eden Foods. The company, "founded in 1969 as a retail food cooperative," is the last significant organic food manufacturer in the USA, according to Potter, the company's sole owner. Walnut Acres used to be the oldest independent, until they were purchased and eliminated by Acirca.

Refrigerated soymilk has hurt sales of aseptically packaged soymilks, and Eden's soymilk sales have been down 8.6%/year for each of the past 4 years. But Potter is optimistic about sales of Eden's other products. In 2003 Eden's sales were about $45 million.

Eden's sales or 98% from organically grown products. Potter estimates that Eden supports about 300 family farms with 40,000 acres of organically managed farmland in the USA and Canada. The advent of USDA organic regulations [NOP] in 2002 brought major changes to Eden, from adding new organic ingredients to having to redesign all labels. Potter is critical of NOP for lax enforcement of organic standards, but he does not agree with those who think that the industry should work to make organic prices closer to those of conventional foods. "The percentage of income that Americans spend on food is the smallest in the world. Food is undervalued, and when you think 'cheap, cheap, cheap' what you end up with is conventional American food, the laughing-stock of planet Earth." Instead of using lower prices to attract new customers, Potter believes that educating consumers about organic and conventional food should drive future growth.

2908. SunOpta Inc. 2004. Sunrich (Portfolio). Toronto, Ontario, Canada. 12 inserts. 31 cm.
• ***Summary:*** The cover of this portfolio is a composite color photo on a tan background. The photo shows (L-R) whole soybeans, a glass of soymilk, green edamame (in the pods), a farmer in a field examining heads of wheat, a wooden scoop of corn flour and grits, whole kernels of corn. Below it is the SunRich logo, the name in red, a stylized yellow sun background, and the tag line below: "Your direct link to

Nature." On the inside front cover are six oval color photos, each explaining Sunrich's mission.

Inserts: (1) The SunRich Food Group: Unique vertically integrated soymilk business model. Identity preserved non-genetically modified soy foods ingredients. Five photos show from seed producer to third party distribution.

(2) SunRich company fact sheet (on letterhead). Sunrich (a Sun-Opta company) was founded in 1978. In Aug. 1999 Sunrich, led by SEO Allan Routh, was acquired by Stake Technology Ltd. The Sunrich Food Group, composed of four companies (Sunrich, Nordic Aseptic, Northern Food and Dairy, and Hearty and Natural) now has $150 million in sales.

(3) Reprint of an article: Fleming, Richard. 2001. "The roots of sustainability run deep for Sunrich." *Natural Business LOHAS Journal* 2(4):45-46. Fall.

(4) SunRich Food Group product and services. (5) Soy and organic food trends. Soymilk sales nationwide have grown from $100 million in 1995 to $550 million in 2001. (6) William Fenske: Vice president of technical services for Sunrich Food Group (Bio). (7) Allan Routh: President of the Grains and Soy Products Group of Sunrich Food Group (Bio). "Mr. Routh has been involved with Sunrich since it was established in 1978, originally to develop export markets for waxy corn growers. A graduate of the University of Minnesota and the University of St. Thomas (Minnesota)." Mr. Routh is also involved in the production of high quality Berkshire Pork for export to Japan, and continues to be active in his family's farming operations in southern Minnesota. (8) Unlimited soy solutions! Color, glossy, back to back. (9) Unlimited Organic Solutions! (10) Cooking with SunRich Naturals brand edamame and shelled edamame (9 p. of recipes). (11) SunRich Food Group patents low fat, high protein organic soymilk formulation–Soy Lite (Feb. 2003). (12). SunRich Food Group executive named new president of Soyfoods Association of North America (Tina Nelson, Feb. 2003). (13) SunRich Food Group introduces new SunRich Naturals line of frozen edamame and fully organic, gluten-free veggie burgers (Sept. 2003, expected to hit stores by Jan. 2004). (14) SunRich to co-sponsor soy tasting event, hosted by Soyfoods Association of North America (on March 6 during 2004 Expo West). (13) Edamame and shelled edamame: New food service item. Address: Toronto, Ontario.

2909. *Ontario Soybean Growers Soybean Report.*2004. Ontario Soybean Growers' office is relocating. April. p. 1.
• ***Summary:*** "As of May 1, 2004, our new address and contact information will be:

Ontario Soybean Growers
Suite 205, Second Floor
Research Park Centre
150 Research Lane
Guelph, Ontario
N1G 4T2 [Canada].
Phone: (519) 767-1744.
Fax: (519) 767-2466.
E-mail: cansoy@soybean.on.ca.
Web: www.soybean.on.ca. Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

2910. *Ontario Soybean Growers Soybean Report.*2004. Inaugural conference focuses on producer awareness. April. p. 1.
• ***Summary:*** "Renewable fuels, grain marketing, international trade and corn and soybean production were among the hot topics presented at the first-ever Ontario Corn and Soybean Conference in London last month.

"More than 400 corn and soybean growers were joined by representatives from industry, government and the farm supply sector at the inaugural meeting hosted by the Ontario Corn Producers Association (OCPA) and the Ontario Soybean Growers (OSG)." Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

2911. *Ontario Soybean Growers Soybean Report.*2004. Federal funding will improve CAIS program. April. p. 1.
• ***Summary:*** "A $995-million assistance package for Canadian agriculture will help to address concerns with the new Canadian Agricultural Income Stabilization (CAIS) program. And the chair of the Ontario Soybean Growers, Bill Allison, is pleased with the announcement.

"The announcement made last month by Prime Minister Paul Martin and Agriculture and Agri-Food Minister Bob Speller outlined the package, which includes $680 million for direct payments to cattle producers, $250 million for general transition payments to all producers and $65 million to cover the federal government's share of the shortfall for the 2002 claim year under the Canadian Farm Income Program."

"The funding acknowledges two holes in the CAIS program, he says. First, the $250-million transition payment will help the program counter the price depressing effects of foreign subsidy programs. Second, the $680-million assistance to cattle producers will supplement the gap currently unavailable for helping farmers during major disasters, such as BSE" ["mad cow disease"]. Address: Box 1199, Chatham, ONT, Canada N7M 5L8. Phone: 519-352-7730.

2912. Dansby, Angela. 2004. Global adoption of biotech crops rising: European Union wild card on future acreage and rate of adoption. *Seed World* 142(5):6, 8-9. May.
• ***Summary:*** As of 2003, 18 countries have adopted genetically engineered (GE) crops. The countries with the largest GE acreage (in million acres) are USA 42.8, Argentina 13.9, Canada 4.4, Brazil 3.0, China 2.8, South

Africa 0.4, Australia 0.10, India 0.10, and Romania and India each less than 0.1.

The European Union's regulations on biotech food and feed traceability and labeling went into effect on 18 April 2004; these are seen as paving the way for new GE crop approvals, and ending the EU's 5-year ban on them. "The rules, officially adopted in July 2003, require food and animal feed to be labeled if they contain 0.9 percent or more biotech ingredients." Address: Editor, Seed World.

2913. Piscopo, Lauren. 2004. PowerBar founder Brian Maxwell, 1953-2004. *Natural Foods Merchandiser.* May. p. 12.
• ***Summary:*** Brian died of a heart attack on March 19 in San Anselmo, California, at age 51. He was born in London and raised in Canada. He graduated from the University of California at Berkeley where he ran track and studied architecture. In 1977 he was tanked No. 3 marathoner in the world, and went on to become No. 1 marathon runner for the Canadian Olympic team that boycotted the Moscow Olympic Games.

In 1983, the idea for an endurance-boosting bar for athletes who came to him after "bonking" (what runners call the point at which the body runs out of carbohydrates and starts burning muscle). In 1986, he and his wife Jennifer created one of America's first energy bars in their Berkeley kitchen. Then the couple started handing out PowerBars (chocolate or malt nut flavors) and coupons at races, with coupons for mail-ordering the bars.

Brian Maxwell was "completely dedicated to athletes performing at their best."

The company eventually grew to $150 million in sales and 300 employees before Maxwell sold PowerBar Inc. in March 2000 to Nestle S.A. for a reported $375 million. He is survived by his wife and 6 children.

2914. Sorensen, Jean. 2004. Top 10: Going green–Yves Potvin launches a new meat alternative. *Food in Canada* 64(4):41-43. May.
• ***Summary:*** "Former Chef Yves Potvin makes it quite clear that he has nothing against meat as he launches his second company, Garden Protein International, which produces a meat-substitute called 'Gardein' from vegetable proteins."

Potvin has developed chicken, pork and beef flavoured products, which "can be used in soups, stir-fries, curries or combined with sauces. The new product is already being distributed through SYSCO Foods to commercial outlets and institutions in Canada and the U.S. By fall, Potvin expects to see one or more North American manufacturers package Gardein to sell through retail stores. Discussions are currently on with many of the largest Canadian and U.S. company labels."

Potvin is best known as the founder of Yves Veggie cuisine, which he built into a $50 million enterprise. He is a "flexitarian," who sometimes eats meat and sometimes eats non-meat dishes. Potvin says that right now, the price of Gardein is about the same price as the price of meat. Address: Freelance writer, Victoria, British Columbia.

2915. Tunick, Barbara. 2004. Rise and fall: Use the glycemic index to regulate blood sugar. *Vegetarian Times.* May. p. 75-77, 79. [1 ref]
• ***Summary:*** In about 1984 the glycemic index was developed by David Jenkins, MD, at University of Toronto, Canada. The idea was to help diabetics manage their insulin response to foods. He challenged the notion that all carbohydrates have the same effect on blood-glucose–or glycemic–levels. His index ranks foods on their immediate impact on blood-glucose levels. Foods on the GI are rated from 1 to 100. Low GI foods have a value of 0-55. Medium GI are 56-69. High GI are 70-100.

Carbohydrates that break down quickly during digestion and that cause blood-glucose levels to rise quickly (such as a white French baguette 95, or a baked potato 84, or a white bagel 72, or Coca-Cola 53) have high ratings. Lower ratings are given to carbohydrates that break down slowly (almonds 0, avocado 0, large eggs 0, canned soybeans 14). For best results, give up all sugar and artificial sweeteners, substituting fruits. Use whole grains instead of refined, white ones.

2916. Davis, Robert. 2004. Dying to the Self. Leaving Good Karma Foods and moving to Nelson, British Columbia, Canada, to create a Safe Space and make miso (Interview). *SoyaScan Notes.* June 5. Conducted by William Shurtleff of Soyfoods Center.
Address: Founder, Good Karma Foods (GKF), 4527 Hilltop Drive, Clinton, Washington 98236.

2917. Gupta, Raj. 2004. New developments at ProSoya in the USA, India, and Canada (Interview). *SoyaScan Notes.* June 8. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** ProSoya has just acquired a former dairy cheese plant (41,000 square feet) in Heuvelton, New York state (about 10 minutes drive from the Canadian border) and is now setting up a soymilk extraction plant. He hopes to begin shipping products in early Sept. 2004. ProSoya will sell soy extract to third parties, just as SunRich now does.

Raj estimates (based on statistics from SoyaWorld) that total soymilk sales in Canada from all manufacturers is about 75 million liters, which is about 2.5% of the dairy milk market. The soymilk market is growing rapidly, and ProSoya is also doing well. ProSoya has decided not to license its process to other manufacturers, but to make the soymilk itself–in part because ProSoya has developed an improved technology (by adding an additional step to their previous airless cold grind process) which gives soymilk with a much better flavor. Raj will never apply for another

soymilk patent. This process is largely independent of the quality of the soybeans used. The contract between SoyaWorld and ProSoya has changed; starting last month they began a non-exclusive license, compensations have been changed from royalties to other types from them, and other new terms have been added to the agreement. Therefore ProSoya can now produce soymilk and soyabase in Canada and the USA and compete with them.

Concerning Dean Foods and White Wave: Who could ever have imagined that America's biggest dairy company (Dean) would become a major manufacturer and promoter of soymilk? Dean is the right company; they saw the opportunity and took it–while other dairy companies wished that soymilk would somehow go away. Raj is proud of the fact that, even though his competitors do not acknowledge it, his airless cold grind process has become the basis of making good-tasting modern soymilk. All the major soymilks taste the same these days. Yet Raj believes that there is a long way to go in improving the taste of soymilk.

ProSoya recently established its own soymilk plant in India; in Jan. 2004 the products were first sold in stores. The head office is in Bombay and the soymilk is made only from whole soybeans grown in India. In both India and the USA its soymilk will be sold in aseptic cartons and will be brand named Staeta–but the word "soy" (in "soy milk") appears on the front panel in even larger letters than the word "Staeta." Soy is no longer a "dirty word" in India; it now has a positive connotation. For details see www.staeta.com. Click India. This is a different website from ProSoya.com. Last time ProSoya entered the Indian market, they tried to go from the "bottom up," targeting their products to the lowest income people. This time they will go from the "top down," by establishing the fact that soymilk is being consumed by affluent people. As in North America, the soymilk will be more expensive at retail than dairy milk, not because of the cost of the soymilk but because of the cost of packaging and a smaller distribution system. The product has been very well accepted in India. Flavors include natural (unformulated), original (slightly sweetened), malt, chocolate (with real cocoa), and kesar-pista. Even the hundreds of smaller SoyaCows made by ProSoya are making soymilk consumed mostly by wealthier people, and not by the poor.

In the next phase, ProSoya will start to make powdered soymilk (already developed), sold in plastic pouches, which will be less expensive. This product has an excellent flavor and texture, after it is reconstituted; people can't tell the difference. They say this is the only powdered soymilk that doesn't taste like "paper pulp." Raj's goal in India is to sell soymilk for one-half to one-third the price of dairy milk. The problem with selling liquid soymilk in plastic pouches is the high cost of shipping water, the shorter shelf life, and the need to protect the pouches with secondary packaging. Address: President and CEO, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2918. *Food Processing (Chicago).*2004. Wellness Foods–New Product Profiles: Two next-generation analogues better simulate full muscle texture. 65(8):s38. Aug. 1.
• ***Summary:*** ADM has introduced NutriSoy Next using soy proteins combined with other vegetable proteins such as wheat gluten or, in some cases, egg whites. Using a twin-screw extruder with the ingredients at relatively high moisture levels of 50-80% locks in flavor and gives them a moist texture.

Garden Protein International has launched Gardein, which is extruded non-GMO soy protein and wheat. It comes in a variety of formats and flavors. "Beef, chicken, and pork analogs are available in small or medium shreds as well as 3/4 inch and 3/8 inch dice. Pre-sauce options include teriyaki, BBQ, sweet and sour, honey garlic as well as roasted garlic and pepper."

2919. **Product Name:** Mellow Organic Brown Rice Miso.
**Manufacturer's Name:** Tradition Miso.
**Manufacturer's Address:** R.R. #4-2090, Claremont, ON L1Y 1A1, Canada. Phone: 905-649-2513.
**Date of Introduction:** 2004. September.
**Ingredients:** Organic soybeans, organic brown rice, unrefined sundried sea salt [from Brittany, France], deep well water, culture *(Aspergillus oryzae).*
**Wt/Vol., Packaging, Price:** 450 gm glass jar.
**How Stored:** Refrigerated.
**New Product–Documentation:** Labels for Mellow Organic Brown Rice Miso brought to Soyinfo Center by Jerry Lewycky, Suzanne Cardinal, and their two kids, Katrina and Maxim. 2007. Jan. 2. Self adhesive. 2.6 by 10.5 inches. Black and reddish brown on peach. Product with this label first sold Dec. 2005. Product is certified organic by OCPRO Canada. The logo is still the black illustration of the monk. Letter (e-mail) from Jerry Lewycky (whose last name is pronounced luh-WIK-ee), founder and owner. 2007. Jan. 22. Jerry and his wife and co-worker Suzanne Cardinal, first began selling this miso on 13 Sept. 2004. "I used cut-up Brown Rice Miso labels with printed stickers for the first year."

2920. Hymowitz, Ted. 2004. Meetings connected with the Uniform Soybean Tests (Interview). *SoyaScan Notes.* Oct. 26. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** From time when the cooperative soybean trials began in the late 1930s and early 1940s, the cooperating breeders from the various northern states and Canada would meet once a year, typically near at the University of Illinois. They would discuss basic issues, such as which strains should go into the next year's variety trials, issues of disease resistance, protein and oil content, etc. Ted attended

some of the early meetings; 30-40 people were there. Then the meetings got too large, so they were moved to St. Louis, Missouri.

Most of this took place before the major rise of private commercial soybean production following the Plant Variety Protection Act of 1970. Address: Retired Prof. of Plant Genetics, Dep. of Crop Sciences, Univ. of Illinois, Urbana, Illinois.

2921. AGP–A Cooperative. 2004. Annual report to members: Adding value to your harvest. 12700 West Dodge Road, P.O. Box 2047, Omaha, Nebraska 68103-2047. 38 + 22 p. 28 cm.
• ***Summary:*** Net sales for 2004 (year ended Aug. 31) were $2,663.640 million, up 25.3% from $2,125.765 million in 2003. Earnings from continuing operations (before income taxes): $28.941 million, up 80.9% from the $15.996 million in 2003.

"During fiscal 2004, we were without the crushing capacity at Sergeant Bluff due to the accident at the end of fiscal 2003. Although the downtime was very costly to AGP during the year, the plant was rebuilt incorporating the most efficient and cost-effective technology... This plant was also the site of our methyl ester operation, and we are optimistic that the new energy initiative will promote the better use of methyl ester in the biodiesel market. This will give us an opportunity for a methyl ester expansion in fiscal 2005."

This year Masterfeeds marks its 75th anniversary; it is one of Canada's premier animal nutrition companies. "In 1929, Gordon C. Leith established Masterfeeds as part of Toronto Elevators Limited at Queen's Quay, Toronto."

Income taxes (p. F14): "The Company, as a nonexempt cooperative, is taxed on nonmember earnings and any member earnings not paid or allocated. Deferred income taxes are computed based on an estimate of the portion of temporary differences that are attributable to nonmember earnings." Address: Omaha, Nebraska. Phone: (402) 496-7809.

2922. Boyte, Frances. 2004. Tofu: Tout flamme [Tofu: On fire]. Outrement, Quebec, Canada: Éditions de Trécarré. 94 p. Illust. (color photos). No index. 26 cm. [Fre]
• ***Summary:*** A very attractive book, printed on glossy paper, with many stylish full-page color photos. Many of the recipes in this book were developed by professional restaurant chefs incl. Éric Boutin, Sébastien Leblond, Benoît Paquet, and José Trottier. The name of the recipe creator is given below each recipe.

Contents: Acknowledgments. A word about the author. Tips for cooking with tofu. How to make tofu at home. Entrees, soups, and potages. Main dishes. Desserts. On the rear cover is a color photo and some words about the author. Address: Les Ateliers diététiques de Frances Boyte, 825, avenue Beauregard, Bureau 117, Sainte-Foy (Quebec), Canada G1V 4L7.

2923. McClinton, Lorne. 2004. Brazil's land-rushed lessons: Farmers tell what its like to buy farmland in ag's new frontier. *Furrow (The) (John Deere Co., Moline, Illinois)* 109(6):34-37. Sept/Oct.
• ***Summary:*** American and Canadian farmers are rushing to buy soybean farmland in Brazil's cerrado.

2924. Hain Celestial Group, Inc. (The). 2004. Annual report 2004. Melville, New York. 58 p. Nov. 28 cm.
• ***Summary:*** Net sales for the year ended 30 June 2004 were $544.058 million, up 16.6% from 2003. Net income in 2004 was $27.008 million, down 1% from 2003.

Accompanying the annual report is a "Notice of Annual Meeting of Stockholders and Proxy Statement" (35 p.). Irwin Simon, the founder and CEO, age 45, had the following annual compensation: Salary: $810,000. Bonus: More than $850,000. Stock options: 300,000 shares. Note: The value of the company's stock rose very slightly during the past year. Now the management is begging for compensation. Address: 58 South Service Road, Melville, New York 11747. Phone: 516-237-6200.

2925. **Product Name:** SoYummi [Coffee].
**Manufacturer's Name:** Les Aliments SoYummi.
**Manufacturer's Address:** 3655 Redpath, Montreal, Quebec, Canada H3G 2W8.
**Date of Introduction:** 2004.
**Wt/Vol., Packaging, Price:** 125 gm in a low plastic (polypropylene) cup, with flat lid and individual sleeve. Retails for Canadian $1.39.
**How Stored:** Refrigerated, 35-40 day shelf life.
**New Product–Documentation:** Talk with Joanne Hollander. 2008. May 29. In 2004 the company added a 5th flavor, coffee, to their "Classic" line. She doesn't recall which month. In 2003 the company won an award–the Grand Prix–for the best new dessert product in Canada. That included non-organic products, so she was competing against Pillsbury and Big Food. The prizes are organized and sponsored by the Canadian Grocers Association.
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2926. Johnston, Robert D. ed. 2004. The politics of healing: Histories of alternative medicine in twentieth-century North America. New York: Routledge. viii + 386 p. 26 cm. *
• ***Summary:*** Many chapters by various authors. From grocery store to doctor's office, alternative medicine is everywhere. A recent survey found that more than two in five Americans uses some form of alternative medicine. "The Politics of Healing" brings together top scholars in the fields of American history, history of medicine, anthropology, sociology, and politics to counter the view

that alternative medical therapies fell into disrepute in the decades after physicians established their institutional authority during the Progressive Era. From homeopathy to Navajo healing, this volume explores a variety of alternative therapies and political movements that have set the terms of debate over North American healing methods." Contents: Introduction: The Politics of Healing. Precursor: The years in the Wilderness: Negotiating Dissent: Homeopathy and Anti-Vaccinationism at the Turn of the 20th Century, by Nadav Davidovitch. Making Friends for 'Pure' Homeopathy: Hahnemannians and the Twentieth-Century Preservation and Transformation of Homeopathy, by Anne Taylor Kirschmann. Revisiting the 'Golden Age' of Regular Medicine: The Politics of Alternative Cancer Care in Ontario [Canada], 1900-1950, by Barbara Clow. Science and the Shadow of Ideology in the American Health Foods Movement, 1930s-1960s, by Michael Ackerman.

Intersections: Allopathic Medicine Meets Alternative Medicine: 'Voodoo Death': Fantasy, Excitement, and the Untenable Boundaries of Biomedical Science, by Otniel E. Dror. Western Medicine and Navajo Healing: Conflict and Compromise, by Wade Davies.

Contesting the Cold War Medical Monopoly: Sister Kenny Goes to Washington: An Unorthodox Nurse, Polio, and Medical Populism in Postwar America, by Naomi Rogers. 'It Could Happen Here': California Housewives, Anti-Communism and the Alaska Mental Health Bill of 1956, by Michelle M. Nickerson. 'Not a so-called democracy': Antifluoridationists and the Fight Over Drinking Water, by Gretchen Ann Reilly.

Contemporary Practices / Contemporary Legacies: Engendering Alternatives: Women's Health-Care Choices and Feminist Medical Rebellions, by Amy Sue Bix. Inside-Out: Holism and History in Toronto's Women's Health Movements, by Georgina Feldberg. A Quiet Movement: Orisha and the Healing of People, Spirit, History, and Community, by Velana Huntington. The Politics and Poetics of 'Magazine Medicine': New Age Ayurveda in the Print Media, by Sita Reddy. Complementary and Alternative Medicine Cancer Therapies in Twentieth- Century North America: The Emergence and Growth of a Social Movement, by David J. Hess. Beyond the Culture Wars: The Politics of Alternative Health, by Matthew Schneirov and Jonathan David Geczik.

Conclusions: Contemporary Anti-Vaccination Movements in Historical Perspective, by Robert D. Johnston. From Cultism to CAM: Alternative Medicine in the Twentieth Century, by James C. Whorton.

Soy is mentioned on pages 163-64, 174, 177, 178, 179, 348.

2927. Veer, Christine. 2004. Un aliment aux mille vertus: le miso [A food with a thousand virtues: Miso]. Brossard, Quebec, Canada: Pure Simple Nutrition. 46 p. 14 cm. [Fre]* Address: Quebec, Canada.

2928. Herring, Sandy. 2005. The Solae Branded Products program (Interview). *SoyaScan Notes.* Jan. 5. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** For a product to become part of the Solae Branded Partners program, the manufacturer must agree to two things: (1) To put the Solae logo (of at least a minimum size) on the product. (2) To include a minimum amount of Solae brand isolated soy protein (ISP) in the product. Usually Solae's advertising program ("Protein in Unexpected Places") promotes some of the Branded Partners' products. The makers of some products that do contain Solae might decide not be part of the Branded Partners program because (for example), the package might be too small to include the logo, the amount of protein that gives the maximum acceptability and profitability might be less than Solae requires.

In the past, many products contained ISP for its functional properties, such as being a good binder or emulsifier. The new program is designed to add value to consumer products by making Solae a "characterizing ingredient" and by advertising that the product contains Solae. Before Solae approaches a potential new customer about "a co-branding opportunity," they do a great deal of consumer research and market research about the concept of a product that contains Solae–its acceptability and how the new product or product concept "would resonate with their consumers." Solae presents their ideas of how the ad might look, the packaging might look, etc.

A media release (faxed by Sandy to Soyfoods Center) lists the following 16 branded products: 8th Continent Soymilk (www.8thcontinent.com), Snapple-A-Day Meal Replacement Beverages (www.snappleaday.com), V8 Splash Smoothies (www.v8juice.com), Gardenburger Meat Alternatives (www.gardenburger.com), Mori-Nu Tofu (www.morinu.com), Yves Veggie Cuisine (www.yvesveggie.com), NuGo Bars (www.nugonutrition.com), DelightFull Meal Replacement & Snack Bars (www.affinta.com), DelightFull Smart Snax (www.delight-full.com), Hormel Health Labs Great Shake & Great Shake Plus (www.hormelhealthlabs.com), Perky's 100% Natural Nutty Grains & Soy Cereal (www.pacgrain.com), Natural Harmony Foods SoyLean (www.soylean.com), So Good Soymilk (available in Canada) (www.so-good.com), Linda McCartney Spicy Peanut Pasta with Vegetarian Chicken (www.linda-mccartney.com), Body Choice Premium High Protein Cookies (www.bodychoicenutrition.com), El Burrito Meat Alternatives (www.elburrito.com).

Note: The Solae Company Logo and Solae* are trademarks or registered trademarks of Solae LLC. Address: The Solae Co., P.O. Box 88940, St. Louis, Missouri 63102. Phone: 314-982-2680.

2929. *Food Processing (Chicago).*2005. Faux fowl foods with full flavor. 66(1):s26. Jan.
• ***Summary:*** "Gardein is a high-moisture vegetable protein product with all the taste and texture of meat." It contains more protein per ounce than meat, but is low in fat, and is fortified with vitamins and minerals. "It is made from non-GMO soy protein, wheat gluten, carrot fiber and pea protein."

Contact Garden Protein International, Richmond, British Columbia. Phone: 604-278-7300. www.gardenprotein.co.

2930. McLean, Lisa. 2005. Producers, come to Toronto March 2 (News release). Feb. 21.
• ***Summary:*** "Guelph, Ontario–Ontario's seven grains and oilseeds organizations are expecting all their members to make their voices heard by attending the rally at Queen's Park [site of the Ontario Legislative Building] in Toronto that is being sponsored by commodity organizations, and general farm organizations on Wednesday, March 2.

The rally–being called "The One Voice March"–is the first of its kind where so many of Ontario's agriculture sectors and other general farm organizations are working with the Ontario Federation of Agriculture (OFA) to call attention to the crises currently being faced by farmers across the province."

Among the demands that OFA will take to the legislature are: (1) A "Grain Market Disaster Payment." Producers need a $300 million infusion. (2) An adequately funded, effective replacement for MRI; and (3) Refinements to CAIS.

Note: A follow-up news release sent by McLean on March 2 states: "Ontario's grains and oilseeds sector is facing a drastic price collapse that have [sic] sunk prices to a 25-year low. The prices of fuel, electricity, and other resources that allow growers to plant crops have risen far beyond the value of the harvest." In Ontario, the AgriFood industry is the 2nd largest next to the auto industry.

2931. *Ontario Soybean Growers Soybean Report.*2005. First joint conference and OSG AGM in March, Feb. p. 1.
• ***Summary:***

"Monday, March 7, 1pm: Soybean growers are invited to attend OSG's Annual General Meeting on Monday, March 7 at 1pm at the London Convention Centre (following OCPA's AGM). Anyone who grows and markets soybeans in Ontario is eligible to vote on resolutions brought forward at the meeting.

"Tuesday, March 8: Join us for Ontario Corn Producers' Association (OCPA), the Ontario Soybean Growers (OSG) and the Ontario Wheat Producers' Marketing Board (OWPMB) first joint conference, hosting an excellent speaker program and trade show for cash crop farmers. For registration details contact the Ontario Wheat Producers' Marketing Board 519-767-6537." The full conference program (with speakers) is given. Address: Guelph, ONT, Canada.

2932. Ladouceur, Andre. 2005. Installing a soymilk plant in Iran (Interview). *SoyaScan Notes.* March 10. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** André has just returned from Iran, where (from Feb. 18 to March 8, 2005) he installed and commissioned a $16 million soymilk plant (VS4000), made by ProSoya, with a capacity of 4,000 liters/hour of soybase, plus mixing stations. Next to that plant he installed a Tetra Pak aseptic packaging line. The plant, located near the capital city of Tehran, expects to start making soymilk commercially (i.e. launch their first products) in 1-2 months. They are now developing flavors and products suited to Iranian consumers. The soybeans used to make the soymilk will be imported from Canada. The plant is owned by a corporation named Soya Sun; the majority of the shares are owned by Iranians, but ProSoya, and he, and other Canadians also own shares. ProSoya contracted with him to do this work in Iran.

For the past 10 years, Andre has lived in Ontario, where he worked for ProSoya doing R&D and commissioning their larger soymilk plants worldwide, and especially in Russia. He also installed a 2,000 liter/hour soymilk plant in Israel. He is now starting a consulting company in Toronto, Canada named MaxSoy Canada Inc.; he is a soy operation specialist, and now lives on Vancouver Island in British Columbia. His second company is Soy Joy Health Products Development, Inc.; he develops products from soy, such as soy kefir.

Talk with Andre. 2005. June 6. He does not know whether or not this company has started to sell soymilk in Iran. They owe him $3,000, and they have broken two contracts with him to do further work. Address: Founder, I&PS, 305b Dogwood Dr. Ladysmith, BC, Canada V9G 1T5. Phone: (250) 616 1714.

2933. Ladouceur, Andre. 2005. Industry and Production Systems Consulting Inc. Business introductory. Ladysmith, BC, Canada. 7 p. Unpublished typescript. March 16.
• ***Summary:*** Contents: Executive summary. Services to be offered. Management. Summary of qualifications. Relevant skills. Achieved travel history and experience (1997-2004). Service (rates and fees). Marketing strategy: "Soy Operations Specialist." Address: Founder, I&PS, 305b Dogwood Dr. Ladysmith, BC, Canada V9G 1T5. Phone: 250 616 1714.

2934. Froehlich, George. 2005. Chinese market beckons B.C. business: But exporters told they need to take risks. *Business Edge (Canada).* March 17. p. 6.

• ***Summary:*** A photo shows Yves Potvin of Garden Protein International. He "plans to offer a meatless alternative to Asian customers wary of the avian flu."

2935. Green Cuisine. 2005. Green Cuisine (Website printout–part). http://www.greencuisine.com. 2 p. Printed March 20.
• ***Summary:*** Home: The Restaurant. The Products. On the home page two signs flash alternatively: (1) Green Cuisine. (2) Your vegan lifestyle source since 1989.

If you click "The Products:" Ask Andy. Contact us. Links. Where to buy. Wholesale info. Products: Amasake, Super Shake, Super Soy, Mochi, Tofu (Firm or Medium), Baked Tofu, Tempeh, Marinated Tempeh, Tempeh Burgers, Wheat Cutlets.

Note: No address, phone number, or company history is given. Address: #5–560 Johnson St., Market Square, Victoria, BC, Canada. Phone: 250-385-1809.

2936. Noble Bean. 2005. Noble Bean Tempeh Shop (Website printout–part). http://www.noblebean.ca. 11 p. Printed March 20.
• ***Summary:*** Home: Recipes (4 p.). FAQs (1 p.). About us (2 p.; good history). Links (2 p.). Contact us (1 p.). Nice design, company history, and color photos.

2937. Sol Cuisine. 2005. Sol Cuisine (Website printout–part). http://www.solcuisine.com. Printed March 20.
• ***Summary:*** Home: Where to buy. Products. Food service. Contact. Recipes. GMO. Links. Products (2 p. of color photos): Burger (Original, Vegetable, Spicy Bean). Falafel & Sauce. T-Nugget. T-Ribz. Sol Shakes (Vanilla, Tropical, Berry). Solgurt (soy yogurt; Strawberry, Blueberry, Natural). Tempeh (Rice, or Quinoa). Organic Tofu.

Note: No company history is given. Address: 5715 Coopers Ave., Unit 1, Mississauga, ONT L4Z 2C7 Canada. Phone: 905-502-8500.

2938. *Ontario Soybean Growers Soybean Report.*2005. April is soyfoods month. April. p. 1.
• ***Summary:*** "Soyfoods Canada is kicking off soyfoods month by promoting a new teaching kit. The teaching kit–developed by Ontario Agri-Food Education (OAFE) and Soyfoods Canada and being distributed by OAFE–is based on Ontario's curriculum for grades four to six, and is available nationwide from agriculture in the classroom organizations. Touching on many curriculum areas, students are encouraged to write stories about how soybeans are processed, calculate the amount of soybean meal made from one bushel, and learn the nutritional breakdown of various foods made from soy.

"Once all 2,000 of the reusable teachers kits are distributed, they are expected to reach up to 50,000 students. Funding for this project was provided in part by Agriculture and Agri-Food Canada through the Agricultural Adaptation Council's CanAdapt Small Project Initiative." Address: Guelph, ONT, Canada.

2939. Bunge North America. 2005. History (Website printout–complete). http://www.bungenorthamerica.com/about/history.htm. 7 p. Printed May 12.
• ***Summary:*** A good chronology with many photos. 1818-Johann Peter Gottlieb Bunge founds Bunge & Co. in Amsterdam, the Netherlands, as an import/export trading company. 1859–Edouard Bunge, Johann's grandson, develops the company into one of the world's leading commodity trading firms. 1884–Ernst Bunge, Edouard's brother, emigrates to Argentina where he and his partners found an associated company, named Bunge y Born, to trade in Argentina's grain exports.

1905–Bunge begins its global expansion. It starts to invest in Brazil. 1918–Bunge establishes a presence in the United States to trade in raw agricultural commodities. 1923–Bunge North America Grain Corporation is incorporated in New York as a privately-held company. 1935–Bunge North America Grain Corporation purchases its first sizeable grain facility, buying an old wooden rail terminal in Midway, Minnesota and constructing a new concrete terminal alongside it.

1967–Bunge Corporation constructs its first soybean processing plant at Destrehan, Louisiana (an aerial photo shows the plant).

1992- Bunge Corporation partners with ContiQuincy Export Company, a joint venture between Continental Grain Company and Quincy Export, Inc. to promote export sales of soybean meal produced by Bunge Corporation's Soybean Processing Division and Quincy Soybean. The joint venture is disbanded in 1999 following the creation of Bunge Global Markets.

1998–Bunge Corporation's Soybean Processing Division opens a soybean crusher-refiner with the largest oil extractor in the U.S. at Council Bluffs, Iowa, and builds an integrated refinery at its Decatur, Alabama, crushing facility. 1999–Bunge Limited moves its global headquarters from Sao Paulo, Brazil, to White Plains, New York.

2000–Bunge Limited announces its intention to go public (IPO) within two years. Bunge Global Markets, a sister company of Bunge Corporation, is established to pursue export trade opportunities in bulk commodities, thereby extending the global reach of Bunge Corporation.

2001–Bunge Corporation changes its name to Bunge North America, highlighting the key role the Company plays in executing Bunge Limited's global strategy and reflecting its North American experience and the geographic focus of its operations.

2001 Aug. 2–Bunge Limited, Bunge North America's parent company, goes public. It issues 17.6 million shares in its initial public offering (IPO) on the New York Stock

Exchange (NYSE: BG), ending almost 200 years as one of the largest privately held companies in the world.

2002 Oct. 15–Bunge Limited announces that it has purchased a controlling interest in Cereol S.A. [formerly owned by Ferruzzi], an oilseed processor and manufacturer of soy ingredients with operations in Europe and North America. As a result of this transaction, Bunge North America will integrate its operations with Cereol's North American oilseed businesses–Central Soya in the United States and CanAmera Foods in Canada.

2940. *Ontario Soybean Growers Soybean Report.*2005. Global Alliance for Liberalized Trade in Food and Agriculture. May. p. 1.

• ***Summary:*** "The Canadian Agri-Food Trade Alliance (CAFTA), along with 38 other organizations from 15 countries, participated in the launch of the Global Alliance for Liberalized Trade in Food and Agriculture in Geneva on April 19.

"'This new alliance will be an important voice supporting more open trade for the entire agriculture and food value chain, from producers to processors, food services and consumers,' says Liam McCreery, President of CAFTA. " The Global Alliance's declaration calls for negotiators to heed the Doha mandate by agreeing to commit to:

"Deep cuts to overall trade distorting subsidies;

"An early date for the elimination of all export subsidies;

"Enhanced market access for all products, including 'sensitive' products, through deep and harmonizing tariff cuts and substantial expansion of minimum access requirements;

"Special and differential treatment for developing countries that also provides them flexibility to reach their full competitive potential; and

"Rules based on sound science [re: genetic engineering] to avoid their use as non-tariff barriers.

"The full declaration and more information on CAFTA can be found at www.cafta.org." Address: Guelph, ONT, Canada.

2941. Ag Processing Inc. (AGP). 2005. Ag Processing Inc. (AGP). (Website printout–part). http://www.agp.com. Printed June 27.

• ***Summary:*** Home: About AGP (2 p.). AGP News. Employment. E-store. Links. Contacts. Map / Hotels. Insurance. Products and services: Soybean processing, export, AminoPlus, food, grain, industrial products, feed, Protinal / Proagro. AGP News. Contract / Premium opportunities with AGP Member Cooperatives. MaxYield Cooperative announces partnership agreement with AGP. 2004 AGP Annual Report.

About AGP: A farmer owned company. Introduction. Formation in 1983, composition, and ownership. AGP's distinctions. AGP's mission. AGP's reason for existence. Our cooperative motto is "Partners in food production." "Since its formation in 1983, AGP has been committed to the success of its owners. Today, that is 222 local cooperatives and six regional cooperatives, representing 250,000 farmers from 16 states throughout the United States and Canada.

"AGP operates nine soybean processing plants including six plants in Iowa, located at Eagle Grove, Emmetsburg, Manning, Mason City, Sergeant Bluff, and Sheldon. Other AGP processing plants are located at Dawson, Minnesota, St. Joseph, Missouri, and Hastings, Nebraska. The Hastings plant is the first farmer-owned soybean processing facility in that state. AGP holds the distinction of being: (1) The largest 'cooperative' soybean processing company in the world. (2) The fourth largest supplier of refined vegetable oil in the United States."

Company history: A cooperative (3 p.). "In 1983, Land O'Lakes, Inc., a Minnesota corporation, Farmland Industries, a Kansas Corporation, and Boone Valley Cooperative Processing Association, an Iowa corporation doing business only in soybean processing, entered into a joint venture agreement to form one cooperative soybean processing company. On August 31, 1983, Land O'Lakes Inc. and Farmland Industries combined their soybean processing plants located at Dawson, Minnesota; Fort Dodge, Iowa; Sergeant Bluff, Iowa; St. Joseph, Missouri; and Van Buren, Arkansas into a new company.

"Shortly after the reconfiguration of 1983, the new company name 'Ag Processing Inc a cooperative' was adopted with the corporate logo AGP as our company trademark.

In December 1985, the company acquired additional processing plants at Manning Iowa and Mason City, Iowa from American Grain and Related Industries (AGRI).

"Soybean processing: Soybean processing is AGP's primary business. AGP is the largest soybean processor in Iowa and the fourth largest soybean processor in the United States based on capacity. Additionally, AGP is the largest *cooperative* soybean processor in the world. Every month, AGP plants acquire more than 18 million bushels of soybeans for processing. That's the equivalent of the soybeans grown on 15 thousand acres per day. AGP annually purchases and processes more than 5.5 million acres of members' soybeans. AGP continues to expand crushing capacity with the addition of plants in Emmetsburg, Iowa (1997) and Hastings, Nebraska (1999).

"In 1985, AGP began refining soybean oil by purchasing equipment for installation in an existing building located at the St. Joseph, Missouri, soybean processing plant." AGP's refining business has since greatly expanded. AGP also makes ethanol from corn.

"Methyl esters: In 1997, AGP expanded in many areas with the completion of a soybean methyl ester plant in Sergeant Bluff, Iowa." The products are sold under the SoyGold brand and "are used in a wide variety of applications including soydiesel fuel, solvents, and spray adjuvants (used to enhance the effectiveness of agricultural chemicals)."

AGP 2005 contract programs: Vistive soybean premiums, Non-GMO contracts (Manning, Iowa). AGP guaranteed premium program: Rate table. Address: Omaha, Nebraska.

2942. Eaglesham, Allan; Wildeman, Alan; Hardy, Ralph W.F. 2005. Agricultural biotechnology: Finding common international goals. *NABC Report (National Agricultural Biotechnology Council, Ithaca, New York).* No. 16. 324 p. (Proceedings of the NABC 16th annual meeting, held 13-15 June 2004 at the University of Guelph, Ontario, Canada).
• ***Summary:*** The common goals are: "Diminish the ecological footprint. Improve the quality of life. Ensure safe and healthy food." But are these the real issues? An excellent critique is found on pages 97-99.

The National Agricultural Biotechnology Council provides an open forum for the discussion of issues related to the impact of biotechnology on agriculture. Established in 1988, it is a consortium of not-for-profit agricultural research, extension and educational institutions. Address: 1. Executive Director, NABC, Boyce Thompson Inst., Room 419, Tower Road, Ithaca, NY 14853; 2. Vice President for Research, Univ. of Guelph; 3. NABC President. Phone: 607-254-4856.

2943. *Ontario Soybean Growers Soybean Report.*2005. CAFTA campaign stresses importance of international markets. June. p. 1.
• ***Summary:*** "OSG Director and Bruce County farmer Jim Gowland is among the six Canadians to be featured with his family in the 'My Future is Global' campaign from the Canadian Agri-Food Trade Alliance (CAFTA).

"The 'My Future is Global' campaign is designed to highlight the importance of international markets to Canada's agriculture and agrifood sector. Canada is the world's third largest exporter of agriculture and food products. More than 90% of Canada's farmers, representing 80% of farm cash receipts, rely on international markets. And more than a million Canadian jobs depend on trade.

"Yet the sector continues to be forced to compete in a market that is severely distorted by subsidies and access barriers."

"'We are really happy to be telling the positive story of trade to Canada's decision makers,' says CAFTA President Liam McCreery. 'We want Canada's decision makers and negotiators to understand how important trade is to the Canadian agriculture and food sector, and how innovative and competitive our industry is. But we also want them to understand that this very vibrant industry is relying on them to negotiate aggressively at the World Trade Organization to remove market distortions. Our future is global, and it's in their hands.'"

A photo shows Jim Gowland and his family. "Jim's specialty soybeans are found in tofu in Japan. They are also considered special health foods in Europe." Address: Guelph, ONT, Canada.

2944. *Ontario Soybean Growers Soybean Report.*2005. Ontario farmers kick off postcard campaign for Risk Management Program. July. p. 1.
• ***Summary:*** "Ontario grain & oilseed producers are gearing up for a fight for a larger piece of the provincial funding pie for agriculture with a large-scale postcard campaign aiming to involve farmers, rural citizens, and the general public.

"The postcards, reading 'Farmers Feed Cities,' have a clear message for the Premier: 'Please increase support to Ontario Agriculture and the Rural Economy. I encourage the Premier to support the Risk Management Program (RMP) for Ontario's farmers.'

"'We're facing a potentially long process with government to get funding for this program, and we need support from growers, other farm organizations, and the general public,' says Greg Devries, Chair of Ontario Soybean Growers. 'It's vital that we have grassroots involvement in this lobby campaign–growers need to be ready to get involved when their commodity boards call on them for help.'

"The Committee plans to collect signed postcards throughout the summer and personally deliver them to the Premier in the Fall. This is the first initiative in a series of plans to garner support for the program.

"Committee representatives have been meeting regularly with senior government officials and staff members. They hope to meet with the new Minister and Deputy Minister in the coming weeks.

"The Ontario Grain & Oilseed Safety Net committee also plans to work with the general farm organizations on the Unified Voice movement to support other commodity groups in their work with government." Address: Guelph, ONT, Canada.

2945. Soyfoods Association of North America. 2005. Soyfoods (Website printout–part). http://www.soyfoods.org. 13 p. Printed Aug. 15.
• ***Summary:*** Home: About SANA. BookMart. Technical / Regulatory. Members only. Become a member. Photos. Contact us.

Consumer news and consumer info: News releases, policy statements, presentations, 25 ways to enjoy soyfoods, recipes, events. Sales and product info: Sales and trends, soy fact sheets, history of soy products (members' products

only [ridiculous]). Soy and health: Soy and heart disease claim, soy and dietary guidelines, soy and cancer claim, soy and children, primer on soy, FAQs. Locating soy products: Retailers list, wholesalers list, company contacts, soyfood samples, food service. Special announcement: SANA booth at Natural Products Expo East. E-mail: info@soyfoods.org. Copyright 2005. Website sponsored by Vitasoy, Boca, Soy7, White Wave, Yves, Morningstar Farms. Revival, The Solae Company. The logo of each is shown.

About SANA: Goals. Objectives. History of SANA. Chronology of SANA's main accomplishments, 1985-2004. 2005 Board of Directors. Officers. Committee Chairs. Executive director: Nancy Chapman. Address: 1001 Connecticut Ave., NW, Suite 1120, Washington, DC 20036. Phone: 202-659-3520.

2946. Stephens, Arran. 2005. IP and organic farming best ways to contain GMOs: GMO impact on organic. *Non-GMO Report (The) (Fairfield, Iowa)* 5(8):6. Aug.
• ***Summary:*** "Organic certification has always been a system guaranteeing that all the production, handling and processing of an organic product has been done in accordance with a practice standard. It has never claimed to be a purity standard and makes no claims as to purity of the certified products." Address: Founder and President of Nature's Path Foods, an organic food manufacturer based in Richmond, BC, Canada.

2947. Jackson, Harry. 2005. Recollections of Irving Rosen and Quincy Soybean Products Co. Part II (Interview). *SoyaScan Notes.* Sept. 26. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** Continued: What kind of a man was Irving? Hal recalls: "He was a wonderful man, a sweet, kind, quiet guy who worked very hard. He came from a very poor family on the west side of Chicago. I hear he had only 5th grade education. He arrived at work early each day, was a hands-on guy, low key with a low voice, never put on a show about anything, not obtrusive at all, intelligent. He wasn't the kind who would put it in the newspaper every time they started up something; he sort of kept things quiet. He didn't want to be in the news. Like the other Sinaikos, he was a self-made man. He joined the local clubs in Quincy because our people were not well accepted in those days–the good old establishment. He had a hell of a time getting the funds to build the original plant. No bankers would loan him money–except for one man at the State Street Bank, which is why I go there still. He joined the Rotary Club and all that sort of thing but he was still an unknown. He was one of the first people in Quincy to hire black people at his plant.

"Alex Sinaiko, Joe's father, was the big guy in the family; he and his sons were in the grain business in Madison, Wisconsin. The Sinaiko brothers shared people as well as information. Joe had some very fine people who came in and installed equipment. One man was Louis Langhurst, a wonderful man who designed flaking mills and knew a lot about soybean plants. They don't make 'em like that any more." Another guy was Howard Devine from Iowa. He sold the Devinolator, a conveyor that had metal plates that moved the flakes into the extractor, and also brought the extracted flakes out of the desolventizer–without mashing the flakes or creating any sparks. Devine's product was similar to that of Linkbelt. Another excellent equipment supplier was Les Mauer from St. Louis, Missouri; he sold conveyors and helped do plant layout; he would climb all over the equipment and the plant, and he knew how everything worked. "We had wonderful people that we worked with–many of them little guys who Joe Sinaiko helped to get started."

How did Irving make money in those early days of soybean processing? Crushing margins, set by the government, were good during World War II. So they made good money during the war. "They got in the right business ahead of time."

The Moorman company, which was headquartered in Quincy, bought soybean meal for the livestock feed business from Irving. Then they decided to expand into the soybean processing business. Irving felt that the time was right for him to retire. So Irving sold his company to them in Sept. 1961 when he was about age 60 and in good health; Hal stayed on until 31 Dec. 1980. Marcella, Irving's wife, had died on 8 March 1958 in Quincy (of a brain tumor), even though Irving, a very loving husband, had done everything he could to save her. Shortly after her death, he moved to Chicago, gave much more responsibility for Quincy Soybean to other people, and visited from time to time. After about 2 years he met a widow named Ida; they were married and continued to live in Chicago. He and Ida vacationed in Miami Beach, Florida, and Hal thinks he contracted hepatitis B there. This turned into liver cancer. He went to the Mayo Clinic in Minneapolis, Minnesota, for treatment. It was important to Irving that, in his will, the money he made from the sale of his business be distributed equally among his four children. Irving died on 18 April 1964 at the Mayo Clinic in Rochester, Minnesota, of liver cancer.

The Moormans ran the company in a totally different way than Irving had. Hal recalls that they were Christian evangelists; he was the only Jewish guy that ever worked there. Some of the old-timers were very anti-Semitic. "I wasn't that comfortable." Mr. Hulsen, later the president, was very good to Hal. Moorman brought in an outsider from Canada, who made millions for arranging the sale of the company to ADM, then left the company. After ADM bought the company in 1998, they put up ADM stock for the profit-sharing plans. But when the ADM stock dropped from 24 to 12, the Moorman retirees who had profit-sharing

and pension plans lost about half their money. This was very upsetting to all the old-timers who had been there for 30-40 years. Some of them had hundreds of thousands of dollars in these profit-sharing plans.

At Quincy Soybean, Hal worked for Ted Bean, who came to Quincy from Lauhoff Grain in Danville, Illinois. "Ted was one of the most astute marketing men I ever met." He kept us out of the soy protein ingredients. business. Things were done very efficiently and people worked very hard, so that Quincy made more money than Moorman's other divisions. Quincy had a very efficient plant and excellent marketing–from Ted Bean. Joe taught his friends how to save money by buying used equipment; Hal traveled all over the world buying used equipment–and a lot of it was just as good or better than new. Every year Quincy increased its volume to gain efficiency. When Hal retired on 31 Dec. 1980, Quincy was the single largest soybean processing plant on one site in the United States. They had solvent extraction plants on both sides of the railroad tracks. The oil refinery is still there.

Quincy used a very unusual process to remove the hulls from soybean meal to make 50-51% protein meal. Starting in about the mid-1960s, they removed the hulls at the tail end of the process using gravity separation vibrating tables named "Sutton tables." Tail-end dehulling cost much less than the other technology which dehulled at the front end. There were 5-6 Sutton tables in the Quincy plant; they were shaped somewhat like a sloping triangle with air coming up from underneath. The heavy material came off the at top and the light fluffy stuff (like the soybean hulls) came off at the bottom. Quincy was one of the few plants in the industry that used Sutton tables; the plant never used expensive front-end dehulling. Louis Langhurst started his own company that made excellent low cost cracking mills and flaking mills.

Ike Sinaiko started a small oilseed crushing company (using expellers) in California. He definitely crushed soybeans; Hal went there and saw them being crushed. Ike was a very sweet guy. Irving Field, Ike's son in law, took over the company from Ike. Note: Liberty Vegetable Oil Co. in Norwalk, California, started in 1948.

Hal remembers Joe Sinaiko as "tough and smart. He was all business. He was the brains, but he didn't lollygag around [fool around]. He knew what he wanted to do and he knew how he wanted to do it. He was the lead guy and he had a lot of weight on his shoulders. It's not easy to be a pioneer."

Hal offers to help Soyfoods Center do research on the early history of Quincy Soybean Co. He has called the French Oil Mill Machinery Co. (Piqua, Ohio) and they have offered to look in their archives for the date that Quincy Soybean ordered their equipment. He will also work with the local newspaper and historical society.

Note: In Nov. 2005 Hal sent Soyfoods Center a wealth of valuable documents on the history of Quincy Soybean. Adrienne Rosen, wife of Norman Rosen (Irving's son, who now has Alzheimer's), sent many early and very interesting photographs. Address: Quincy, Illinois.

2948. *Ontario Soybean Growers Soybean Report.*2005. New Canadian Soybean Council promotes grower strengths across provinces. Sept. p. 1.
• ***Summary:*** "Organizations representing soybean growers in Ontario, Manitoba and Quebec are now formally working together with a goal of improving the profitability of Canadian soybean producers.

"The Canadian Soybean Council consisting of representatives from the Ontario Soybean Growers (OSG), the Manitoba Pulse Growers Association (MPGA), and the Federation des Producteurs de Cultures Commerciales du Quebec (FPCCQ) will initially focus on identifying and developing new export markets for Canadian soybeans.

"The Council's first initiative is the formation of an Export Committee, consisting of representatives from the three provinces and the Canadian Soybean Export Association, who will direct export market development activities.

"The Council's first market development activity is an incoming technical course from Asia, coordinated by the Canadian International Grains Institute. The course will tour sites showcasing Canada's soybean industry from September 26 to October 5." Address: Guelph, ONT, Canada.

2949. *Ontario Soybean Growers Soybean Report.*2005. We're moving! Sept. p. 1.
• ***Summary:*** "Ontario Soybean Growers will be moving into the Ontario AgriCentre on September 30, 2005. The organization will increase efficiencies by sharing office space with the Ontario Corn Producers' Association, Ontario Wheat Producers' Marketing Board, and the Ontario Canola Growers' Association."

OSG's phone and fax numbers will remain the same, and mailing address is:

Ontario Soybean Growers
Ontario AgriCentre, Suite 201
100 Stone Rd. W Guelph, ON N1G 5L3
Phone: 519-767-1744. Fax: 519-767-2466.
ww.soybean.on.ca. Address: Guelph, ONT, Canada.

2950. McLean, Lisa. 2005. Re: Fred Brandenburg, Wendy Jahn, Rob Black, and Ontario Soybean Growers (OSG). Letter (e-mail) to William Shurtleff at Soyfoods Center, Oct. 3. 1 p.
• ***Summary:*** Fred Brandenburg left OSG in the spring of 2005. After some health problems several years ago, he had stepped down as General Manager. Wendy Jahn has held the

position for the two years. Rob Black has now taken Wendy's position as General Manager, effective Nov. 7, 2005. Rob was most recently executive director of 4-H Ontario, where he worked for 5 years. Previously he worked with the Ontario Ministry of Agriculture, Food and Rural Affairs for 15 years. A brief bio of Rob is given.

Fred is presently with Agriculture Canada. Address: Communications Coordinator, Ontario Soybean Growers, Guelph, Ontario, Canada.

2951. AGP–A Cooperative. 2005. Annual report to members: Adding value to your harvest. 12700 West Dodge Road, P.O. Box 2047, Omaha, Nebraska 68103-2047. 40 + 20 p. 28 cm.

• ***Summary:*** Net sales for 2005 (year ended Aug. 31) were $2,349.849 million, down 11.8% from $2,663.632 million in 2004. Earnings from continuing operations (before income taxes): $50.656 million, up 75.0% from the $28.941 million in 2004.

The report begins with a 2-page list of AGP's members (as of 31 Aug. 2005). They are located in the following states (listed alphabetically): Arkansas (1). California (1). Illinois (1). Iowa (87). Kansas (23). Michigan (1). Minnesota (40). Missouri (3). Nebraska (28). North Dakota (1). Oklahoma (1). South Dakota (30). Utah (2). Wisconsin (4). Saskatchewan, Canada (1).

"Double vegetable oil refining capacity at Hastings, Nebraska plant... New product launches: Vistive low-linolenic soybean program in the U.S." (p. 5).

"Renewable fuels: In 1996, AGP became the first company in the industry to construct a methyl ester production plant that exclusively utilized soybean oil. That plant, at Sergeant Bluff, Iowa, not only produces biodiesel but also products for industrial uses such as solvents and agricultural spray adjuvants... The biodiesel industry grew from 25 million to approximately 70 million gallons this fiscal year and is expected to increase to at least 400 million gallons in the next two to three years. In part, the increase will be due to passage of the federal energy bill. New state biodiesel legislation also will have an impact. In Minnesota, for example, a new law requires that all diesel fuel sold in the state contain a two percent vegetable oil blend, known as B2. Illinois also ordered government fleets to use biodiesel beginning in 2006, and similar standards are being considered in at least seven other states.

"In light of these circumstances the AGP Board of Directors approved expansion of the Sergeants Bluff plant to more than double biodiesel capacity. The project was completed this year, giving AGP the ability to produce over 15 million gallons of biodiesel per year... AGP was the first and remains the industry leader in methyl ester and biodiesel production. AGP markets its biodiesel, branded as SoyGold, through its wholly owned subsidiary Ag Environmental Products LLC" (p. 20-21).

AGP now has European offices in: Antwerp, Belgium. Barcelona, Spain. Komarno, Slovakia. Pecs, Hungary. Address: Omaha, Nebraska. Phone: (402) 496-7809.

2952. **Product Name:** O Organics Organic Soymilk [Plain, Vanilla, Chocolate].
**Manufacturer's Name:** Lucerne Foods, Inc. (Safeway) (Distributor). Made in Canada.
**Manufacturer's Address:** P.O. Box 99, Pleasanton, CA 94566-0009.
**Date of Introduction:** 2005. October.
**Ingredients:** Chocolate: Filtered water, organic whole soybeans, organic cane sugar, organic cocoa, tricalcium phosphate, sea salt, carrageenan, zinc gluconate, niacin, pantothenic acid, riboflavin (vitamin B-2), vitamin B-6, vitamin A palmitate, thiamine mononitrate (vitamin B-1), folate, vitamin D-2, vitamin B-12.
**Wt/Vol., Packaging, Price:** Half-gallon Tetra Pak ESL gable-top carton. Retails for $3.79 (2006/07, Lafayette, California).
**How Stored:** Refrigerated.
**New Product–Documentation:** Product with Label purchased at Safeway supermarket in Lafayette, California. 2006. July 31. 3.75 by 3.75 by 9½ inches. Brown, blue, yellow, light green, on white. Front panel: "Cholesterol free. Vitamin fortified. Calcium enriched." A color photo shows chocolate soymilk being poured into a glass. Top front: "Lactose free. Contains 40 mg of isoflavones per serving." Sometimes on sale for $2.49. Nice flavor.

Talk with Sherry at Safeway Corporate Brands. 2006. Aug. 2. This line of 3 flavors was introduced in the USA in Oct. 2005 and in Canada in Dec. 2005.

2953. Hain Celestial Group, Inc. (The). 2005. Annual report 2005: A healthy way of life. Melville, New York. 12 + 62 p. Dec. 28 cm.

• ***Summary:*** Net sales for the year ended 30 June 2005 were $619.967 million, up 13.9% from 2004. Net income in 2005 was $21.870 million, down 20.1% from 2004.

Most of the report is Form 10-K/A. Accompanying the annual report is a "Notice of Annual Meeting of Stockholders and Proxy Statement" (40 p.). Irwin Simon, the founder and CEO, age 46, had the following annual compensation: Salary: $980,000. Bonus: More than $1,000,000. Stock options: 300,000 shares. Address: 58 South Service Road, Melville, New York 11747-2342. Phone: 631-730-2200.

2954. Lyddon, Chris. 2005. Global grain trade review. *World Grain* 23(12):34-38, 40-41. Dec.

• ***Summary:*** For soybeans in 2004-05, the top exporters (in 1,000 tonnes [metric tons]) are: 1. USA 29,801. 2. Brazil 20,538. 3. Argentina 9,600. 4. Paraguay 2,600. And Canada 1,025. Total world exports: 65,034.

Top importers: 1. China 25,700. 2. E.U.-25 16,000. 3. Japan 4,300. 4. Mexico 3,500. 5. Taiwan 2,300.

Statistics are also given for soybean meal.

The five leading U.S. seaports for imports and exports of all grains are (in million tonnes): 1. South Louisiana 44.169. 2. Houston, Texas 5.273. 3. Portland, Oregon 3.548. 4. Duluth, Minnesota 2.573. 5. Corpus Christi, Texas 1.687. Address: World Grain's European Editor, chris.lyddon@ntlworld.com.

2955. Nature's Path. 2005. [Chronology of Lifestream and Nature's Path: 1952–2005]. Richmond, BC, Canada. 8 p.
• ***Summary:*** In the upper left corner of each colorful page is the Nature's Path oval logo. At the lower right is the text "Nurturing People, Nature & Spirit." On page one are described events from the years 1952, 1971, 1977, and 1980–describing the history of Lifestream Natural Foods, Ltd. A color oval photo shows Arran Stephens "holding the mother of all loaves" and smiling broadly.

The remaining 7 pages contain a chronology of Nature's Path. On the last page are 3 entries for the year 2005. Address: 9100 Van Horne Way, Richmond, BC Canada V6X 1W3.

2956. Brand-Miller, Jennie; Wolever, Thomas M.S.; Colagiuri, Stephen; Foster-Powell, Kate. 2005. The new glucose revolution: The authoritative guide to the Glycemic Index–The dietary solution for permanent weight loss. Emmaus, Pennsylvania: Rodale Press. xvii + 382 p. Subject index. Recipe index. 24 cm. [32 ref]
• ***Summary:*** Contents: Introduction. Part I: What is the glycemic index? 1. What's wrong with today's diet? 2. Why we all need carbohydrate? 3. All about the glycemic index. 4. Fats: Facts and fallacies. 5. The most frequently asked questions–Answered. Part II: Your guide to low-GI eating. 6. Making the change to a low-GI diet. 7. Cooking the low-GI way. 8. Recipes–Breakfasts, light meals, main meals, desserts, snacks.

Part III: The glycemic index and you. 9. The glycemic index and weight control. 10. The glycemic index and diabetes. 11. The glycemic index and hypoglycemia. 12. The glycemic index and heart health: The insulin resistance syndrome. 13. Children and the glycemic index. 14. The glycemic index and peak sports performance. Part IV: The glycemic index tables. The tables: An introduction and how to use them. Condensed tables. Comprehensive tables. Further reading: Sources and references. Glossary. Acknowledgments. About the authors.

"The right kind of carbohydrate can make an important contribution to the quality of your life." That is the essential message of this book, which is about the glycemic index, a physiologically based measure of carbohydrate quality, and the degree to which the carbohydrates in different foods will raise blood glucose levels. The newer idea of glycemic load is also relevant for everyone. The first book about the glycemic index (GI), titled *The Glucose Revolution* (1996) was written by these same authors. Carbohydrates that break down quickly during digestion have high GI values, and they raise blood glucose rapidly to a high level. Carbohydrates that break down slowly, releasing glucose slowly into the blood stream, have low GI values. Glucose is blood sugar. Low fat diets are automatically high in carbohydrate, But not all carbohydrates are the same. Are all starches good for health? Are all sugars bad? We all must look at carbohydrates in a whole new way!

A healthy diet leads to neither too much nor too little blood sugar. Extreme #1: Too much blood sugar. The typical American diet, which is high in refined carbohydrates (such as table sugar and white flour), results in too much blood sugar. This causes your pancreas to flood your body with the hormone insulin and makes it difficult for your body's cells to burn fat.

Extreme #2. Too little blood sugar. Diets low in carbohydrates cause blood sugars to plunge, which also makes your body stop burning fat. Instead it begins burning muscle tissue and converting it into blood sugar. You quickly begin to crave carbohydrates.

Low GI is less than or equal to 55. Moderate GI is 56-69. High GI is 70+.

Prevention says that "high-GI foods" (those with a GI of 70 or above) are bad. "Forget total carbs; its total GI that matters." There are good carbs (low-GI) and bad carbs. A low-GI diet is generally a healthy diet, a weight loss diet, and a diet with low risk of diabetes. A large and growing body of research now reveals that the real issue isn't how much fat or carbohydrate you are eating, but how that food affects your blood sugar. Eating high-GI foods causes sharp spikes in blood sugar. Since blood sugar is a readily available energy source, your body chooses to burn it as fuel, in place of fat. This means you are not burning fat, no matter how hard you exercise.

The Glycemic Index (GI) is a precise scientific ranking of foods based on how much they increase blood sugar levels during a 2-hour period after eating. Current methods of measuring GI use glucose (blood sugar) as the reference food, giving it a GI value of 100 by definition. The GI was first created as an aid to diabetics.

Low-GI foods: Fruits: Apples 40, banana 51, blueberries 40, cherries 22, grapefruit 25, orange 51. Vegetables: Asparagus, beans (all), broccoli, cabbage, lettuce, mushrooms, onions. Breads: Pumpernickel, rye, sourdough, whole wheat. Dairy products. Eggs. Nuts. Seeds.

Soyfoods are not discussed much in this book since they are low in carbohydrates. However: Recommendation 3 (p. 112-13): "Eat more legumes (beans, peas, and lentils) and use nuts (in small amounts) more frequently." Legumes, including soybeans, are inexpensive, low in calories, free of

unsaturated fat and cholesterol, filling. "Soybeans are particularly rich in ALA [alpha-linolenic acid, the plant form of polyunsaturated omega-3 fat] (the plant precursor of omega-3s) and also contain genistein–an anti-cancer phytochemical. Tofu (soy bean curd) is an easy way of using soy. It has a mild flavor itself but absorbs the flavors of other foods, making it delicious when its been marinated in soy sauce, ginger and garlic and tossed in a stir-fry."

The section on the GI values of different food types states, under legumes (p. 129): "Soy beans (GI value of 14-20). These have one of the lowest GI values, possibly due to their higher protein and fat content. Their viscous [soluble] fiber, as in other legumes, reduces physical availability of starch to digestive enzymes."

On p. 329 is a table showing the GI value and glucose load per serving of various soy milks and soy yogurts (mostly from Australia). Similar values are given for soy beans (p. 337).

Concerning ALA (p. 115): "Our bodies can convert this plant-based omega-3 fat to EPA [eicosapentanoic acid, an essential omega-3 fatty acid found in fatty fish and shellfish] and DHA [docosahexanoic acid, another essential omega-3 fatty acid found in fatty fish], but it takes about 10 grams of ALA to yield 1 gram of DHA and EPA."

Is this a weight-loss book that does not mention calories? No, although calories and energy are considered less important than GI (see p. 133, 202, 205). Address: PhD, Prof. of Nutrition, Univ. of Sydney, Australia; 2. MD, PHD, Prof., Dep. of Nutritional Sciences, Univ. of Toronto, Canada.

2957. Koerbitz, Werner. 2005. Status of biodiesel in Asia, the Americas, Australia, and South Africa. In: G. Knothe, J. Van Gerpen and J. Krahl, eds. 2005. *The Biodiesel Handbook.* Champaign, Illinois: AOCS Press. ix + 302 p. See p. 211-18. [7 ref]

• ***Summary:*** Contents: Introduction. The Americas: Argentina, Brazil, Canada, Nicaragua. South Africa. Australia. Asia: China, India, Japan, Malaysia, Philippines, South Korea, Thailand. Address: Austrian Biofuels Inst., Vienna, Austria.

2958. Monson, Shaun. 2005. Earthlings (Motion picture) USA: Nation Earth. 95 minutes. Narrated in English by Joaquin Phoenix and Persia White. Music by Moby. [3 ref]

• ***Summary:*** Contents: 1. Pets.

2. Food. Six billion animals are killed for food each year.

Kosher slaughter: Done with huge machines, not as you might imagine. Kosher prohibitions vs. actual practice.

Veal: Calves chained in a crate for 4 months before slaughter. Fed a mineral deficient diet.

Pigs: Gestation crates, cannibalism, waste pits, tail docking, ear clipping, teeth cutting castration (on done on baby pigs without anesthetics), electric prods, throat slitting, boiling, hair removal and drowning.

Poultry: Americans consume as many chickens in one day in the year 2005 as they did in one year in 1930; the biggest poultry companies kill 8.5 million chickens a day. Debeaking infant chicks, living conditions (60-90,000 chickens in some buildings), transportation, slaughter, dangled upside down on a conveyor belt, throats slit while alive so they bleed to death. If these slaughterhouses had glass walls, we might all be vegetarians–but who wants to look.

Emerson quotation (1860): You have just dined, and however scrupulously the slaughterhouse is concealed in the graceful distance of miles, there is complicity (Source: "The Conduct of Life." Chapter on "Fate)."

Sea food: What happens to all the waste? Most of it is dumped back into the oceans, huge factory trawlers. Whaling was outlawed in 1985. Dolphin slaughter in Japan–their throats are slit out of water and they die of suffocation in agony. Their blood runs back into the ocean as pollution.

Pfiesteria: A disease that is 1,000 times more potent than cyanide. Originates in hog farms and has killed many fish.

Clothes: Leather: Where does it come from? India! Cattle slaughter is forbidden in most of India, so the cattle must be captured (often brutally) and transported to a part of India where their slaughter is condoned.

During transportation the cattle may be treated badly by their handlers and they fall or "go down." So their tails can be broken or chili pepper rubbed in their eyes to make them stand.

All this before slaughter, when their throats are cut–while they are still alive–and they bleed to death.

Tanning involves the use of harsh chemicals to prevent the hide from its natural decomposition. These chemicals can be toxic to tannery workers in India. Most leather retail chains sell leather from Indian cattle since their hides make better leather than the hides of other cattle.

Fur: More than 100 million animals are killed each year for fur; of these, 25 million are killed in the United States.

Most of these animals are raised in cages on fur farms. Cage madness is endless circling and complete disorientation. After they are killed and their skins / furs stripped off, the remaining meat is fed back to the animals in the cages.

Canadian seal hunt.

4. Entertainment: Mark Twain quotation: "Of all the creatures ever made [man] is the most detestable... He is the only creature that inflicts pain for sport, knowing it to be pain."

Rodeos: What causes the broncos to buck? A strap that causes genital pain. Roping.

Gambling: Dog and horse racing.

Fairground animals.

Hunting: Hunters kill more than 200,000 animals a year.

Fishing: Fish feel about the same degree of pain as humans. They too are sentient organisms.

Circuses: Long sequences of brutal footage. Why do circus animals behave as they do? Their owners want us to think it is because of rewards. No! It is because of pain inflicted and fear of punishment. Training is based on punishment and fear. Animals feel, and none would choose captivity. Scenes of animals who escaped retaliating against their trainers.

Zoos: Are they educational. What do they teach. All the animals in them must be captured, caged, transported and trained to do what humans want.

Bull fighting.

Commercial exploitation of wildlife. They do not exist for our pleasure. We do not take seriously the interests of the animals. We use them.

5. Science Vivisection: Inflicting suffering without anesthesia. Two possible erroneous conclusions can be drawn from results.

Medical experiments.

Military research on animals.

Conclusion: It all comes down to the pain and suffering that all animals experience. Antibiotics. Hormones. Pollution. What goes around comes around. We reap just what we sow.

We must change the way we treat animals and we must change our way of thinking about animals.

See also: www.earthlings.com–The official documentary website–for reviews and awards.

2959. Mullin, W.J. 2005. Miso as a functional food. In: John Shi, C.-T. Ho, and F. Shahidi. 2005. Asian Functional Foods. Boca Raton, Florida: CRC Press. xxi + 647 p. See p. 537-53. Chap. 19. [34 ref]

• ***Summary:*** Contents: Introduction. Raw materials: Soybeans (preferred qualities), rice, barley, salt, water, [yeast and] bacterial cultures (halophilic yeasts: *Zygosaccharomyces rouxii, Candida versalitis;* lactic-acid producing bacteria: *Tetragenococcus halophilus),* koji starter *(tane-koji).* Processing technology: Organoleptic properties. Nutritional properties. Standards and regulations.

Of the macronutrients in soybeans, the carbohydrate content is the most important, particularly the level of oligosaccharides.

Page 242: Traditionally, making miso was a family operation that took place after the fall harvest; the food was preserved in times of plenty, which were followed by times of uncertainty in the food supply.

Miso cooperatives: The system of miso cooperatives is very well organized. Local cooperatives throughout Japan are organized into 51 unions, and these are grouped into eight national blocs based on geographical location. The blocs have joined to form a national organization called the Japan Federation of Miso Manufacturers Cooperatives (JFMMC) *[Zenkoku Miso Kogyo Kyodo Kumiai Rengokai],* with headquarters in Tokyo. JFMMC represents about 1,400 miso manufacturers of all sizes. All miso makers are eligible to become members of the local organization, and the vast majority take advantage of the membership, which can provide many benefits. "The JFMMC operates the Central Miso Research Institute, which conducts basic research, tests new domestic and imported varieties, troubleshoots processing problems, and prepares and distributes cultures for fermentation." The JFMMC is very active in public relations and publicity; it also sponsors research into the health benefits and nutritional value of miso. It publishes an annual report which includes detailed statistics on miso production in Japan, as well as discoveries based on new miso research.

Annual miso competitions are held at the local and national level to keep miso in the spotlight; they do much to maintain and improve the quality of miso. Most take place in the fall, with the national JFMMC competition held last of all in early November in Tokyo–a climax of the miso production year. "The competitions are keenly contested with several hundred entries and are widely reported in the national and local media." "Winning a class can be of great promotional benefit to the winner." New uses for miso are also on display with leading chefs preparing dishes that are offered to members of the JFMMC, competition participants, and to the media. Address: Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada.

2960. Shi, John; Ho, Chi-Tang; Shahidi, Fereidoon. 2005. Asian functional foods. Boca Raton, Florida: CRC Press. xxi + 647 p. Illust. Index. 24 cm. Series: Nutraceutical Science and Technology.

• ***Summary:*** Contents: Preface. About the editors. Series introduction. Contributors. Table of contents. 1. Functional foods and their impact on nutrition and health: Opportunities in the Asia Pacific... Contains two chapters on fermented soyfoods (Chap. 19, Miso, and Chap. 20, Doenjang) which are cited separately.

The Preface begins (p. v): "Health and 'healing' foods have a long history in Asian cultures." Asians such as the Chinese and Indians have long known that food and medicine come from the same source; they can treat illnesses and build a healthy life. Since ancient times, Chinese have compiled a remarkable amount of information about the materia medica, the use of natural substances–plants, animals, and chemical–to treat illness.

Kudzu *(Pueraria lobata, ge geng),* one of the earliest medicinal plants used in traditional Chinese herbal medicine, is discussed on pages 83-86.

In chapter 7 titled "Traditional Functional Foods in Korea," the section on "Fermented soybean foods" (p. 165-

66) states that typical daily per capita consumption of these foods are: Soy sauce 20 ml, soy paste 20 gm, and hot soy paste 10 gm. In recent years there has been a decrease in soy intake due to increased use of Western seasonings such as mayonnaise, tomato ketchup, meat sauces, etc.

In Chapter 8, titled "Evolution of Korean dietary culture and health food concepts," the section on "Food as medicine" begins (p. 210): In traditional Korean culture, food was regarded as the basic source of health. It was believed that all diseases could be cured by foods. Korean knowledge of the medicinal effects of foods came, not through the sciences of nutrition, medicine, chemistry, or physiology, but through long human experience. Moreover, a key practice and discipline has long been to eat only when hungry, and not to overeat. The enormous size of the health food market in Korea today reflects the country's long tradition of 'food as medicine.'"

Page 229: "Micronutrients." Asian fish sauces are good sources of vitamin B-12 (cobalamine) because they are made from animal protein. Fish sauce from Thailand contains 1.91 mcg (micrograms) per 100 ml. This amount protects the Thai population from megaloblastic anemia caused by vitamin B-12 deficiency. The estimated average requirement for vitamin B-12 is only 2 mcg per day. However fermented soybean sauce contains very little (0.14 mcg per 100 ml); the small amount present is attributed to microbial synthesis.

Page 230: "The high salt problem." Japanese men rank highest in daily per capita sodium intake at 5.4 gm; the United States, Thailand, and New Zealand each average about 3.9 gm.–72% as much, or 28% less. Some cultures consume as little as 0.69 gm / day.

Pages 248-49: "Future potential for fish sauce." It is unclear whether fish sauce was first developed in Asia or Europe. But while it has vanished in Europe, it has become a thriving industry in Southeast Asia–perhaps because the extensive use of bland-tasting rice requires a salty and tasty protein-rich seasoning. Several species of anchovy are the preferred raw material for fish sauce. Some say that soy sauce was first developed in Japan. Address: 1. Research Scientist, Federal Dep. of Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada; 2. Rutgers Univ., Rutgers, New Jersey; 3. Memorial Univ. of Newfoundland, St. John's, Newfoundland, Canada.

2961. Raphael, Philip. 2006. Solving the beef with veggie foods: Richmond company cooks up the taste and texture of meat with soy-based food. *Richmond Review (The) (British Columbia, Canada).* Jan. 28. p. 17.
• ***Summary:*** Richard Vann, Garden Protein's vice president of corporate development, says that his company has perfected a way of mixing ingredients. The company now operates in a facility of 30,000 square feet on Bathate Way. The key to the process is a line of machines, which are proprietary technology. They are such a closely guarded corporate secret, that some people in the company haven't even seen them. Vann was willing to describe it as a sophisticated pasta machine. The basic ingredients are wheat, soy, spices, and other ingredients.

The company has been delivering products to customers for the past six months [i.e. since July 2005]–mostly to U.S. distributors.

A photo shows Yves Potvin standing in his plant, holding a package of MorningStar Meal Starters.

2962. Altieri, Miguel; Pengue, Walter. 2006. GM soybean: Latin America's new coloniser. *Seedling (Quarterly Newsletter of Genetic Resources Action International, Barcelona, Spain).* Jan. p. 13-17. [17 footnotes]
• ***Summary:*** Contents: Introduction. Soybean deforestation. Forcing small farmers out. Soybean cultivation degrades the soil. Monocultures and ecological vulnerability. Other ecological impacts. A table titled "Global status of biotech crops in 2005," with a world map, states: "21 countries have adopted biotech crops. In 2005, global area of biotech crops reached 90 million hectares, representing an increase of 11% from 2004, equivalent to 9 million hectares. Biotech mega-countries, with 50,000 hectares or more, are (in million ha): USA 49.8. Argentina 17.1. Brazil 9.4. Canada 5.8. China 3.3. Paraguay 1.8. India 1.3. South Africa 0.5. Uruguay 0.3. Australia 0.3. Mexico 0.1. Romania 0.1. Philippines 0.1. Spain 0.1. Those with 50,000 acres or less are Colombia, Iran, Honduras, Portugal, Germany, France, Czech Republic.

A graph shows global area (million hectares) of 4 GM crops (in descending order of acreage in 2005): Soybean, maize, cotton, canola. Address: 1. Prof. of Agroecology, Univ. of California at Berkeley; 2. Prof. of Agriculture and Ecology, Univ. of Buenos Aires, Argentina.

2963. Global Industry Analysts, Inc. (GIA). 2006. Soy foods–Global strategic business report. 5645 Silver Creek Valley Rd., San Jose, California. 302 p. Jan. *
• ***Summary:*** Publisher description: This report analyzes the worldwide markets for Soy Foods in Millions of US$. The specific product segments analyzed are Soy Ingredients, and Soy Oil. The report provides separate comprehensive analytics for the US, Canada, Japan, Europe, Asia-Pacific (excluding Japan), Latin America, and Rest of World. Annual forecasts are provided for each region for the period of 2000 through 2010. The report profiles 151 companies including many key and niche players worldwide such as Archer Daniels Midland Company, Dean Foods Company, White Wave, Eden Foods, Inc., Galaxy Nutritional Foods, Inc., Gardenburger, General Mills, Glenn Foods, Greet Spot (Thailand), Griffith Laboratories (UK), H.J. Heinz Co. Hain Celestial Group, Hartz International (Australia), Hazlewood Grocery (UK), Heartland Fields (USA), Hermans Foods

(Australia), High Mark Foods (New Zealand), Imagine Foods, Inc., Kerry Group PLC (Ireland), Kerry Ingredients (Australia), Kikkoman (Japan, Australia, USA, Singapore), Kimlan Foods Co. (Taiwan), Kuhne Nederland BV (Netherlands), Soyaworld, Inc., Turtle Island Foods, Inc., and Vitasoy USA, Inc.

Price: Electronic or hard copy 3,496 euros. Please note: Reports are sold as single-site single-user licenses. The delivery time for hard copies is between 3-5 business days, as each hard copy is custom printed for the organization ordering it. Electronic versions require 24-48 hours as each copy is customized to the client with digital controls and custom watermarks. Address: San Jose, California. Phone: 408-528-9966.

2964. Eden Foods. Inc. 2006. Edensoy: Prepared as if it were for our children (Ad). *Utne Reader.* Jan/Feb. p. 31.
• ***Summary:*** This ad (full page, color) shows a boy (son of Eden's production manager) drinking soymilk through a straw from a carton of Original Edensoy. "At Eden this means: no irradiation, no preservatives, no chemical additives, no food colorings, no refined sugars, no genetically engineered ingredients–the safest, most nutritious, certified organically grown food that can be found. More than 200 Eden Foods are available at discerning retailers in the USA and Canada. Pure food is our passion. Great taste is our joy." Copyright 2002. Address: Clinton, Michigan 49236. Phone: 1-888-424-EDEN.

2965. Laws, Forrest. 2006. WTO opposes EU's biotech 'moratorium.' *Western Farm Press* 28(8):3. March 11.
• ***Summary:*** "A WTO dispute settlement panel has issued a preliminary ruling that the European Union is engaged in an illegal moratorium on the importation of genetically modified foods as charged in a complaint brought by the United States, Canada and Argentina.

"The ruling, which reportedly runs more than 1,000 pages, said similar bans imposed separately by France, Germany, Austria, Italy, Luxembourg and Greece also violated WTO rules."

"EU officials say they have allowed the import of nine biotech crops since 2004,..." Rick Ostlie (Northwood, North Dakota), first vice president of the American Soybean Association says: "'What must follow is the more important "step two," a challenge to EU's unfair traceability and labeling laws.'"

2966. **Product Name:** SoYummi GoLite Soy Mousse [Black Cherry, Dark Chocolate, California Peach, Bavarian Cream].
**Foreign Name:** Soyummi Golite Mousse de Soya.
**Manufacturer's Name:** Les Aliments SoYummi.
**Manufacturer's Address:** 3655 Redpath, Montreal, Quebec, Canada H3G 2W8.
**Date of Introduction:** 2006. April.
**Ingredients:** Organic soy drink, chicory syrup (sweetener), soy oil, modified cornstarch, modified rice starch, natural flavors, modified vegetable gums, salt, agar, xanthan gum, lactic acid, yucca extract.
**Wt/Vol., Packaging, Price:** 100 gm in a low plastic (polypropylene) cup, with flat lid and individual sleeve. Retails for Canadian $1.39.
**How Stored:** Refrigerated, 30 day shelf life.
**New Product–Documentation:** Cardwell, Mark. 2002. "As good as it gets." Food in Canada. May, p. 38. Talk with Joanne Hollander. 2008. May 29. She wanted to develop a product that contained no sugar and fewer calories. She started developing this product in 2004 using basically the same formula and finally launched it in April 2006. The company got a new CEO at the end of 2004. The label was equally French and English, but in Quebec they always write the French first. "Chicory syrup is a great alternative to sugar but it is expensive." She wanted a product that diabetics could eat–and they are allowed 15 gm of carbs per serving. Another great sweetener is the Chinese fruit *lohan guo (Siraitia grosvenorii;* literally "arhat's fruit" or monk's fruit), from which a natural sweetener is extracted. Wikipedia says: "The fruit extract is nearly 300 times sweeter than sugar and has been used as a natural sweetener in China for nearly a millennium due to its flavor and lack of food energy, only 2.3 kcal/g [calories per gram] (9.6 kJ/g). It has also been used in traditional Chinese medicine."

"I could go 100% organic but nobody would be able to buy the product." This product contained about 1/3 fewer calories than the original SoYummi. They were trying to compete with yogurt, so the Bavarian Cream is 86 calories per 100 gm.
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2967. Nordquist, Ted; Webster, Robin. 2006. New developments making dairylike soyfoods in America (Interview). *SoyaScan Notes.* May 9. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** WholeSoy & Co. is a wholly-owned subsidiary of TAN Industries; Ted now prefers to used the former name instead of the latter. Modesto WholeSoy Co. is its own entity. Ted and his business partner, Henry, now own 85% of the stock.

Silk soymilk was launched in Jan. 1996. Ted was having a lot of problems with the soy base made by Pacific ProSoya in British Columbia. About a year later [probably in about March 1997] Ted installed a soy base plant at Soyfoods of America in Duarte, California. He did this together with Wally Rogers, owner of Bean Machine Inc. (BMI–using a stainless steel grinder / disintegrator made for BMI by Corenco, owned by Chris Cory). Wally took Ted to Chris and together they designed the grinders to be installed at Soyfoods of America. In about Sept. 1997 Ted started

producing soy base for Silk soymilk at the plant in Duarte. This soy base was sent in tankers from Duarte to Gustine, where Ted and coworkers formulated the Silk soymilk.

Ted's next product was made together with Gary Stein. Gary (of San Diego) called Ted and said that Trader Joe's wanted a soymilk. Ted said to Gary, "That's fine, but I have a contract with Steve Demos, so I can't do that." So Ted set up Gary. He told Gary that Ann Shaw and Laura Tewnion knew how to formulate soymilk. He and Gary talked a lot about it but he told Gary, "I can't touch it with a ten foot pole, but I'm happy to ship the soy base to you." So Ted shipped the soy base from Duarte to Gustine, then Gary Stein formulated the soymilk for Trader Joe's and sold it to Trader Joe's.

Ted next product was Certified Organic Soymilk, made for Wildwood Natural Foods and launched in July 1998.

Next, in 1999, Ted and Henry came up with the WholeSoy name. So they had cups designed for WholeSoy but, of course, they had no sales volume, so they sent that idea to Trader Joe's, which agreed for Ted to private label the product for Trader Joe's. So Ted launched both the WholeSoy and the Trader Joe's private label at exactly the same time. They were exactly the same products but in different cups.

In about May 2004 changed the name of his company to WholeSoy & Co. from TAN Industries, and his brand to WholeSoy & Co. from The WholeSoy Co. The words "WholeSoy & Co." first appeared on their Lite Smoothies in September 2004. Ted did a focus group in which he put out packaging from products made by Silk [White Wave], Stonyfield, Wildwood, and TAN Industries. The members of the focus group were asked to describe what they understood by looking at the different packages. "They thought that WholeSoy was a generic name, that companies like Safeway and Albertsons were making. They thought WholeSoy was a really big corporation, and that therefore its products should sell for the lowest price." Ted recalls: "It was unbelievable. I was just speechless. I wanted to go in there and tell them how wrong they were!" They knew the Stonyfield brand and thought that product was worth the money. The Wildwood product attracted them because of it had a real good appearance."

In about Jan. 2006 Ted started printing "Soy Yogurt" in large letters on the front of his yogurt cups–which previously said only "Cultured Soy." It happened like this. Ted's soy yogurt is made by SSI (Super Store Industries), which is owned by Raley's and Save Mart (both supermarket chains). Ted was going into new packaging and he asked them: "Do you have any problem using the terms "Soy Yogurt" or "Soy Frozen Yogurt" on the cups? They said they would check. They checked all of their contacts then told Ted that there was no objection to using those terms.

In Jan. 2006 Ted started using the term "Soy Yogurt" in large letter at the top front panel of his yogurt cups. He gradually phased it in to all flavors as new cups had to be printed.

In Sweden, Ted had only one plant in the county of Enkoeping (pronounced en-CHUR-ping) where he made soyfoods. He built (together with Mark Jungstrum of Trensusms Musteri) a soybase plant in the commune and city of Tingsryd near Karlshamn; it produced 3,000 to 3,500 liters/hour of soybase. And he had a test plant at Alfa-Laval in Lund.

WholeSoy's Soy Cream Cheese was introduced in Feb. 2005 in two flavors: Original and Garlic & Herb. It had a 90-day shelf life with 12 packs per case. Both are still on the market but Ted is in the process of discontinuing the product by letting them "sell through" until they are all off the shelves. He got them into all the natural food stores, but the total market for this product category is too small, so sales were too slow.

In about Sept. 2004 Ted also launched a WholeSoy Smoothie Light, but discontinued it in about Nov. 2005. it. It contained very little sugar and used Lo Han fruit concentrate as the natural sweetener. Address: WholeSoy & Co., 49 Stevenson St., Suite 1075, San Francisco, California 94105-2975; 660 Vischer Ct., Sonoma, CA 95476. Phone: 415-495-2870.

2968. Gupta, Raj. 2006. New developments at ProSoya in the USA and Canada (Interview). *SoyaScan Notes.* May 30. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** "ProSoya" is the popular name of Raj's company. ProSoya Corporation in Heuvelton, New York state is not a new entity. ProSoya Corporation has long existed as a holding / parent company, based in St. Louis, Missouri. The one in New York is a branch of that. The ProSoya UK Ltd. in Livingston, Scotland, which was a separate entity under license from ProSoya Inc., no longer exists. ProSoya Foods India Pty. Ltd. is now active in India.

ProSoya Corp. in Heuvelton is now shipping "soy extract" [soybase / soya base] to a company in Canada. They have also developed a delicious "creamy orange" soymilk with a thick consistency like a smoothie–but it is not yet for sale. Supermarkets that have their own brand of soymilk do not buy soyabase; they want a finished product delivered to their door in their package. Last year Raj could not find a co-packer; but now he has found one in Toronto that packs about 3 truckloads a day for him. He is still looking for one in the USA. If he had been able to find one a year ago, he would be in almost every store by now.

SoyaWorld is now very strong everywhere except in the USA; they have the best-selling soymilk brands in Canada. Since about 2001-2002 they have been owned by Sanitarium Foods of Australia. Originally SoyaWorld was owned by Dairyworld, which was sold to Saputo, then

Saputo sold the soymilk business to Sanitarium Foods. Sanitarium kept "SoyaWorld" as a name for both the business and the brand. They don't want to call it Sanitarium, which is sort of an outdated, old-fashioned funny name. SoyaWorld no longer has royalty or exclusivity agreements with ProSoya (they expired in May 2004), which is why ProSoya can now make and sell soybase, soymilk, and soymilk products.

Raj's soybase is now made by an improved process. It is still made by the basic airless cold-grind process, so that change is more in the art than in the science–it is not a breakthrough, but a fiddling with details. He has not licensed his process to anyone. It is better for formulation, is more bland, and is unique in that it has no soy taste. Raj likes to say that his soybase has "no soy taste" and "no beany taste." Most good manufacturers have be able to get rid of the "beany taste, which is normally associated with rancid oil-like flavors, chalkiness, and astringency," but Raj believes that only his company has been able to also get rid of the "soy taste," which is more subtle yet still a big obstacle to widespread acceptance of soyfoods and soy beverages. When Raj talks to big distributors, they say that all the soyfoods manufacturers claim to have gotten rid of the "beany taste," yet the taste still leaves something to be desired–"it still tastes like soy." So Raj speaks of "no soy taste" to distinguish his products from the others. Raj has found that the people of India "hate soy taste." But they love his products, which have no soy taste. Certain flavors go very, very well with his soybase. If a company uses strong flavors or heavy masking, consumers say the product tastes like medicine.

One interesting phenomenon is that the flavor of soybase or soymilk improves as it is allowed to age for 4-5 days.

Raj is not sure whether or not he should put the word "soy" on the package or not. Address: President and CEO, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

2969. Benner, Peter. 2006. Turning to tempeh: The Brown family has been making tempeh since the late seventies. They're having lots of fun with it and still marvel at the process of turning organic soybeans into a fermented food that is high in complete protein and fibre, yet contains no cholesterol. *Canadian Organic Grower (The)* 3(2):14-18. Spring. [4 ref]

• ***Summary:*** Contents: Introduction. Turned on to tempeh. Slow food, soyfully. Tempering tempeh traditionally (how the Browns make tempeh). Fomenting a fermented sustainability.

For about 12 years the Browns made about 200 lb/day of tempeh. Recently they have increased their volume to 300 lb/day and soon plan to be producing 400 lb/day of certified organic tempeh. They focus on the process and paying attention. They've joined a slow food convivium in Perth. Photos show: (1) Michell Larin, Susan Brown and Allan Brown at the end of a work day at Noble Bean Tempeh Shop. (2) Susan loading trays for incubation. (3) Michelle bags soybeans while Jake mixes beans for inoculation. (4) Jake cooks the beans. Address: Journalist and salesperson for Monteagle Herbs, living in a solar-powered intentional community named Morninglory Farm in Killaloe, Ontario.

2970. Cardwell, Mark. 2006. Top ten: As good as it gets–Les Aliments SoYummi, Montreal, Quebec. *Food in Canada*. May. p. 38.

• ***Summary:*** Joanne Hollander was born in New Jersey, but raised in a tony [aristocratic, stylish] Montreal neighborhood in the 1960s. She was educated in francophone French schools, then returned to the USA for college. In 1982 she developed a nutritious soy mousse for your young son, Aaron, who was completely lactose intolerant; dairy products gave him bad headaches and eczema. The mousse "was an instant hit with her son, as well as everyone else who tried it. Her friends urged her to commercialize it. So in 1987 she paid a McGill University professor of food science $2,000 to help her stabilize it, to increase the shelf life. But when she took samples to dairy and wholesale food distributors in the Montreal area, they all loved the flavor and texture, but said there was no market for a soy product. "'No one was doing anything with soy back then,' says Hollander."

In 1997 soy milk hit Quebec grocery shelves; Holland decided to try again. This time, with $35,000 in private funds, she went to the Food Research and Development Center in Saint-Hyacinthe, Quebec. "Located a half-hour's drive southeast of Montreal, the federally funded facility offers technical assistance and the use of processing equipment to food companies trying to develop new products."

In 2002 She founded Les Aliments SoYummi, a partnership with Roland Degani and Max Druker (who had offered advice and financial support) and that year she launched SoYummi in four flavors, which "first appeared on shelves in Metro and IGA grocery chains across Quebec." The business has continued to grow from a weekly output of 3,000 cups a week to about 48,000 cups a week today. In April 2006 she launched SoYummi GoLite–a low-calorie version.

A photo shows Joanne Hollander.

2971. Eaglesham, Allan; Bessin, Ricardo; Trigiano, Robert; Hardy, Ralph W.F. 2006. Agricultural biotechnology: Beyond food and energy to health and the environment. *NABC Report (National Agricultural Biotechnology Council, Ithaca, New York).* No. 17. 280 p. (Proceedings of the NABC 17th annual meeting, held 27-29 June 2005 at

the University of Kentucky, Lexington, and the University of Tennessee, Knoxville).
• ***Summary:*** This is the first NABC report distributed on CD-ROM, rather than in book format. Each new report shows that NABC is becoming more and more in favor of the basic idea of genetic engineering. The question is how to get the public and consumers to accept these ideas.

The 2005 annual meeting focused on four major areas: (1) Plants as new sources of medicinals. (2) Bioremediation, phytosensing, and ecorestoration. (3) Gene-to-product development, and (4) Regulation, consumer acceptance, and risk management.

One interesting paper, "Can you get there form here? Speed bumps on the road to health and environmental biotech applications," by Michael Rodemeyer (Pew Initiative on Food and Biotechnology, Washington, DC) observes that "the most salient finding of numerous polls is that US consumers remain largely uninformed about GM [sic, GE] foods and their presence in the food supply (Hallman, 2005; PIFB, 2005)."

The National Agricultural Biotechnology Council provides an open forum for the discussion of issues related to the impact of biotechnology on agriculture. Established in 1988, it is a consortium of not-for-profit agricultural research, extension and educational institutions. Address: 1. Executive Director, NABC, Boyce Thompson Inst., Room 419, Tower Road, Ithaca, NY 14853; 2. Vice President for Research, Univ. of Guelph; 3. NABC President. Phone: 607-254-4856.

2972. Green, Carolyn. 2006. Top ten: Welcome to the garden–Garden Protein International, Richmond, BC. *Food in Canada.* May. p. 39.
• ***Summary:*** Garden Protein International makes meatless chicken and beef from identity preserved (IP), non-GMO soy protein and wheat protein, plus various other ingredients such as carrot fiber, minerals and vitamins. In its first year, ending March 31, the company had sales of $10 million.

By contrast, Yves Fine Foods, which he started in 1985, had sales of $235,000 its first year. When Potvin began considering the next generation of meat alternatives in the early 1990s, he used the example of surimi, a Japanese crab-like product made from pollock fish. The result was Gardein, which is made like pasta (sort of) by a unique process of extrusion technology.

By 2003, Potvin began demonstrating Gardein to other food Manufacturers. One of his first customers was Morningstar Farms, a division of the Kellogg Co., Battle Creek, Michigan. Gardein will also be a major ingredient in Loblaw's President's Choice Blue Menu products this fall.

In 2001, when Yves sold Yves Veggie Cuisine to the Hain Celestial Group, he signed an agreement that contained a "non-compete clause" (covenant not to compete–CNC), which prevented Potvin from putting Gardein in the market as a stand-alone product until the fall of 2006. At that time he hopes to have four Garden Protein products in grocery stores: chicken or beef strips can be used in recipes such as stir fries or fajitas, and a chicken or beef dish in a sauce. The price is expected to be about $3.99 for 250 gm.

A photo shows Yves Potvin, a native of Sherbrooke, Quebec, Canada (the only major city in the Eastern Townships) standing and looking happy.

Note: Yves was born in Waterloo, Quebec, then moved with his family to Sherbrooke, Quebec, when he was a teenager.

2973. Johnson, Mary Alice. 2006. Okara in the garden. *Canadian Organic Grower (The)* 3(2):20-21. Spring. [4 ref]
• ***Summary:*** Lots of practical information about how to use okara in gardening, hot beds, and hot houses. Address: Sooke, BC, Canada.

2974. Rapoport, Irwin. 2006. A search for soy. *Canadian Organic Grower (The)* 3(2):22-25. Spring. [2 ref]
• ***Summary:*** Total soybean production in Canada's major producing provinces (in hectares) is: Ontario 1,000,000. Quebec 500,000. Manitoba 100,000. New Brunswick 1,000 to 2,000. Tables show: (1) Area of certified organic pulses grown in Canada in 2004 in hectares (and acres). For soybeans: Total 10,472 (25,867). Ontario 6,480 (16,005). Quebec 3,715 (9,175). Prince Edward Island 142 (350). Manitoba 103 (255). Saskatchewan 33 (81.5). Source: Macey, Anne. 2005. "Certified organic production in Canada 2004." *Canadian Organic Growers.* (2) Soybean varieties recommended by Organic farmers: Arva, Marathon, SO8-80. (3) A selection of varieties of certified organic seed: Casino, AC Glenarry, CF 0703, NK SO8-80, OAC Prudence, OAC Champion and OAC Oxford.

Discusses Quebec's Semences Program. The work of P. Marc Ham, Prograin's director of international market development. Prograin, which has been working with Quebec's Ministry of Agriculture via the Healthy Grain Program (in which growers do not use pesticides, herbicides, or fertilizers, but are not certified organic), is one of the few private companies in Canada that maintains a breeding program. Address: Freelance journalist, Montreal, Canada.

2975. *Vitality (Toronto's Monthly Wellness Journal).*2006. Healthy product news: Tempeh, the soyfood with culture. May. p. 98. [2 ref]
• ***Summary:*** Based on a 25th anniversary news release from Noble Bean, "Canada's largest and oldest tempeh producer." "Noble Bean is a family-run cottage industry nestled in the rolling hills of the Ottawa Valley. There, on 10 acres of land, Allan and Susan Brown and friends produce from 250 to

400 pounds of tempeh a day." They firmly believe that "small is beautiful."

"After using certified organic ingredients for over 20 years, Noble Bean is now an OCPP (Organic Crop Producers and Processors) certified facility."

2976. Associated Press (AP). 2006. Wendy's will switch to more healthful oil. *Los Angeles Times.* June 9. p. C6.
• ***Summary:*** Wendy's International Inc. (based in Dublin, Ohio), America's third largest burger chain, said that, starting in August, in 6,300 restaurants in the U.S. and Canada, it will start frying French fried and breaded chicken parts with non-hydrogenated oil. The change to a blend of corn and soy oil will cut "artery-clogging trans fat" in those menu items by 95%.

2977. Grubb, Steve. 2006. W.G. Thompson & Sons of Canada sold Sycamore Creek Co., America's leading maker of oil-roasted soynuts, to the Splinter Group, which in turn sold it to Central Iowa Soy (Interview). *SoyaScan Notes.* June 26. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** In Jan. 1999 W.G. Thompson & Sons Ltd. of Canada purchased Sycamore Creek Co. (Mason, Michigan) from Len and Irene Stuttman. The company was named INARI, Ltd. before 1993. Then Thompson moved the company to Stockbridge, Michigan, as part of an expansion plan to triple capacity. They bought some new equipment, paid premium prices, and some of it didn't work properly. They took no advantage of Len Stuttman's experience and free consulting advice. Then the soynuts market started to be flooded with dry roasted soynuts which almost killed the industry since most consumers don't like the less expensive dry-roasted product. The dry-roasted nuts are now losing lots of market share. Genisoy (Mel Williams) was hurt by that; they sold their business in about March 2006 to a big investment group, after almost having to declare bankruptcy. The company is still called Genisoy.

In about March 2004 Thompson decided to get out of the soy roasting business and sold Sycamore Creek to The Splinter Group. Splinter ran the company for a while unsuccessfully, almost went bankrupt, then ceased operations in Nov. 2005. Thompson's contract allowed him to take back all the equipment.

The SoyNut Butter Co., which makes I.M. Healthy SoyNut Butter, America's best-selling brand of soynut butter, used Sycamore Creek's oil-roasted soynuts as their main ingredient. They had to scramble to find a new supplier with sufficient capacity. In March 2006 a group of large Iowa farmers named Central Iowa Soy Co. (CIS), working with Jeff, purchased Sycamore Creek and moved the plant to Jefferson City, Iowa, where it is now located at 1577–235th Street, Jefferson City, IA 50129. Phone: 515-386-4445. The CIS plant is expected to be up and running in a week or so. The former production manager agreed to make the move and to continue on in that position. Jeff has known Len Stuttman for decades and long ago used to be on the INARI / Sycamore Creek board of directors.

As part of Iowa's value added program, CIS received a grant of $100,000 on 19 Jan. 2006. An online report says the company is expected to create 21 incented jobs at an average hourly wage of $15.66, plus 3 other jobs. The capital investment is $662,920. Central Iowa Soy producers started as a cooperative in 2002.

Steve is interested in two potentially large and growing markets for soynuts: (1) A replacements for peanuts for the growing number of people who are allergic to peanuts–due in large part to sanitation and urbanization. OB/GYNS and pediatricians now advise that pregnant women and kids under age 3 should not eat peanuts. (2) As an extender or replacer for pecans, almonds, or cashews which now wholesale in large quantities for $3-4/lb, compared with $1/lb for oil-roasted soynuts. The SoyNut Butter Co. makes soynut butter in a plant that never processes peanuts or tree nuts, and the company states this on their label–a claim which virtually all his competitors' companies cannot make, because they do process peanuts or tree nuts.

Central Iowa Soy will focus on selling diced soynuts to large food processors that now use peanuts or expensive tree nuts. They also plant to introduce their soynuts in a can like Planters Nuts. They will used the word "roasted" with interested graphics but they will not use the term "oil roasted" and they rarely say "roasted soynuts." They say: "We have a nut replacer or extender, that happens to be made from soy." Their soynuts are still sold in Reduced-Fat Pecan Sandies. Now they think it is time to get them into every cookie and bar, plus cluster-type cereals. The reason is economic, not nutrition or soy benefits. Dry roasted soybeans don't work nearly as well; they don't have that good flavor, richness, or mouthfeel.

Steve tried to buy Sycamore Creek from Thompson but he lost out in the bidding to The Splinter Group. Address: Senior Partner, T&G Food Ingredient Services, 4220 Commercial Way, Glenview, Illinois 60025. Phone: 1-800-288-1012.

2978. Noble Bean Tempeh Shop. 2006. Noble Bean: 25th anniversary. Thank you tempeh lovers everywhere (Leaflet). McDonalds Corners, Ontario. 1 p. Single sided. 28 cm.
• ***Summary:*** The Canadian original. Certified organic / OCPP. Naturally pure water. Fresh frozen / Not pasteurized. Tasty traditional tempeh. Genuine slow food. The right half is in French. Printed with black ink on mottled tan paper. Two smaller versions (22 cm) are in either English or French, printed with black ink on a cardstock light green background. A pressure sensitive logo in light green, black and white on a dark green background is affixed to the top one-third of each.

2979. Silver, Jimmy. 2006. Re: Recollections of Lifestream and its founder, Arran Stephens, in British Columbia, Canada. Letter (e-mail) to William Shurtleff at Soyfoods Center, July 5. 1 p.
• ***Summary:*** Jimmy has known Arran for many years, starting in the 1970s, when what was then his distribution company, Lifestream, was a customer of Erewhon's. Eventually he began to make his own Lifestream products, then sold the company [in mid-1981] and started his cereal venture, Nature's Path, which has done very well. A few years ago he bought back the Lifestream brand, but it doesn't seem to do much compared to NP. "He is a very interesting guy... Susan and I like him and his wife."

For a number of years when Jimmy was exporting some of their products under private label to Japan, he worked with their daughter, who was then their export manager (and living in London, UK, not in Vancouver, BC, Canada).

Even though Arran has "moved" with the market in terms of ingredients, partly driven by cost and competition and consumer taste, Jimmy knows from talking with him that his preference would be to make things more in line with what Jimmy likes too–sweetened with fruit juice rather than organic sugar or cane juice, for instance. Address: President, Pure Sales, California.

2980. Anderson, George. 2006. Early installations of Crown Iron Works' solvent extractors for processing soybeans (Interview). *SoyaScan Notes.* July 11. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** The first 8 solvent extractors were installed in 1950; all used trichloroethylene as the solvent for extracting oil from soybeans and had a capacity of 25 tons/day. Crown got its original solvent extractor by buying a patent for the process and equipment from Iowa State University. Al Kaiser was head of the solvent department at that time and Joe Givens worked for him. From 1955 on, hexane replaced trichloroethylene in almost all extractors processing soybeans. The initial numbers (in parentheses) indicate the sequence in which the extractors were sold. The list contains entries for about 260 extractors.

(1) Glencoe, Minnesota. (2) Vermont, Illinois. (3) Grand Forks, North Dakota. (4 & 5) Dawson, Minnesota. (6) Blooming Prairie, Minnesota. (7 & 8) Millsboro, Delaware. (9 & 10) 1955–Millsboro, Delaware (25 tons, soybeans). (11 & 12) 1955–Altona, Manitoba, Canada (25 tons soybeans and about 15 tons rapeseed. Note: The capacity of an extractor depends on the type of oilseed it is processing). (13 & 14) 1955–Fremont, Nebraska (40 tons each). (15) 1959–Dawson Minnesota (250 tons).

(16) 1963–Millsboro, Delaware (400 tons). (17) 1963–Dawson, Minnesota (600 tons). (18) 1965–Altona, Manitoba, Canada (250 tons soybeans or 150 tons rapeseed). (21) 1965–Fremont, Nebraska (250 tons). (22) 1966–Monticello, Illinois (less than 100 tons, wheat germ). (23) A laboratory in Hershey, Pennsylvania.

(29) 1968–Clarksdale, Mississippi (600 tons). (30) 1970–Ashdod, Israel (75-100 tons; especially for soy protein concentrate).

(36) 1971–Mason City, Iowa (1,000 tons; the first of this capacity; still running)... (72) 1979–Decatur, Illinois (3,000 tons; the first new stainless steel model 3 extractor–the big seller today. Running on corn germ; still running).

As of 2004, Crown Iron Works has installed 389,622 tons of soybean processing capacity. 90% of the extractors it has ever installed are still in operation–somewhere. The largest extractor Crown has ever built and installed has a capacity of 8,800 tons/day. All Crown Extractors are loop shaped. About 5-6 years ago De Smet bought French Oil Mill's solvent extraction business and shut it down. Address: Vice President for Engineering, Crown Iron Works, P.O. Box 1364, Minneapolis, Minnesota 55440-1364. Phone: 651-639-8900.

2981. Stephens, Arran. 2006. Work of with natural foods, vegetarianism, Lifestream Natural Foods Ltd. and Nature's Path. Remembrances of Kirpal Singh and meditation (Interview). *SoyaScan Notes.* July 18. Conducted by William Shurtleff of Soyfoods Center.
• ***Summary:*** A wide ranging interview on many subjects of interest to Arran over his very productive life. Address: Founder and CEO, Nature's Path, Vancouver, BC, Canada.

2982. Duncan, Alison M.; Dillingham, Barbara L. 2006. Soy & thyroid function: Safety issues examined. *Soy Connection* 14(3):1-3. Summer. [40 ref]
• ***Summary:*** Contents: A quick taste. Introduction. Historical observations. Infants and children. Adults. Thyroid cancer risk. Summary. Address: 1. PhD, RD, Asst. Prof., Dep. of Human Health and Nutritional Sciences, Univ. of Guelph, Ontario, Canada; 2. MSc, manager for Nutritional Fundamentals for Health (NFH), a nutritional supplement company.

2983. **Product Name:** It's All Good [2 Veggie Chick'n Breasts in a Tomato Tuscan Marinade, 2 Veggie Chick'n Breasts in a Herb Dijon Marinade, 2 Veggie Chick'n Breasts Lightly Seasoned, 8 Veggie Chick'n Filets in a Mediterranean Herb and Spice Rub, 8 Veggie Chick'n Filets in a Zesty Lemon Herb Rub, Veggie Chick'n Strips Lightly Seasoned, Veggie Beef Strips Lightly Seasoned, 6 Veggie Chick'n Satays in a Chili Lime Marinade, 5 Veggie Beef Skewers in a Chipotle BBQ Sauce].
**Foreign Name:** C'est tout bon (2 Suprême de poulet végé dans une marinade Toscane, 2 Suprêmes de poulet végé dans une marinade dijonaise, 2 Suprêmes de poulet végé légerèment assaisonnés, 8 Filets de poulet végé assaisonnés d'épices méditerranéennes, 8 Filets de poulet végé

assaisonnés aux citron et fines herbes, Lanières de poulet végé légèrement assaisonnés, Lanières de boeuf végé légèrement assaisonnés, 6 Satés de poulet végé dans une sauce au chili et à la lime).
**Manufacturer's Name:** Garden Protein International Inc.
**Manufacturer's Address:** 12751 Bathgate Way, Richmond (near Vancouver), BC V6V 1Y5, Canada. Phone: 604-278-7300.
**Date of Introduction:** 2006. September.
**Ingredients:** Veggie Chick's Breasts: Water, isolated soy protein, vital wheat gluten, natural flavors, modified vegetable gum, potato starch, expeller pressed canola oil, tomato paste, spices, red bell pepper flakes, pea protein, carrot fiber, organic beet root fiber, organic evaporated cane juice, yeast extract, vinegar, sea salt, and citric acid. Contains Soy and Wheat.
**Wt/Vol., Packaging, Price:** 10.5 oz (300 gm). Paperboard box.
**How Stored:** Refrigerated.
**New Product–Documentation:** Packages sent by Yves Potvin of GPI. 2008. Oct. 28. Paperboard box. 6½ by 6½ by 1¼ inches. Green, red and black on white. A color photo on the front panel shows a Chick'n Breast sliced in half on a bowl of rice. On the front and back panels is the logo of Garden Protein International Inc. "Made with Gardein. Garden grown protein." On one side panel: "No artificial flavors, colors or preservatives. A good source of protein. Grain and vegetable ingredients. Suitable for vegans. Low fat. Manufactured for Its All Good Foods, Inc., Richmond, V6V 1Y5 Canada. itsallgoodfoods.com. Product of Canada copyright 2007." On the other side panel: "Pan fry. Bake. Microwave. Barbecue, Good with rice, potatoes, couscous, pasta." On the bottom panel: Heat & serve: Ready in 2 minutes. On the back panel are Nutrition Facts, ingredients list and recipe ideas. Pressure sensitive sticker (white, black, and gold) on front panel "Winner–Canadian Grand Prix: New product awards." Note: This was GPI's first commercial product.

2984. Mateljan, George. 2006. Healthy foods: Tempeh, the soyfood with culture. *Healthy Directions (Ontario's Natural Health & Nutrition Guide)*. Aug/Sept. p. 37.
• ***Summary:*** A nice introduction to tempeh. Note: Two business cards photocopied with the article show: (1) Noble Bean's 25th anniversary. (2) Noble Bean, "Culturing fine tempeh since 1979. Allan and Susan Brown."

2985. Gupta, Raj P. 2006. Re: An improved process for making soymilk has been developed. Letter (e-mail) to William Shurtleff at Soyfoods Center, Oct. 25. 1 p.
• ***Summary:*** "We have been working on a major process improvement for some time now. Only now we are in a position to share with you our excitement of this greatly improved process we have developed that has the following advantages:

"(a) up to 25% higher yield for each kg of soybeans used (b) reduction in residual particle size in soymilk to submicron size (c) flavor profile improvement–further reduced beanyness (d) reduced viscosity (e) soymilk base can now be cost effectively produced at higher than 10% concentration

"Fortunately, these huge process improvements do not increase the cost of our equipment to the buyer.

"Our new juice-soy beverages–Creamy Orange (that you had tasted during your visit), Peach-Mango, and Pineapple Banana were a hit at the Natural Products Expo in Baltimore in early October. They are seen as truly mainstream, loved even by the most soy-phobic people. Adez and Ades soy drinks of Unilever do not come even close to them in taste and nutrition (7g protein per 250 ml serving). A color .pdf file of our new package design is attached.

"As we discussed before we can build a soymilk system for you to fit almost any budget. We are able to trade automation with increased labor input and dramatically reduce equipment cost without compromising soymilk base quality.

"We recently sold a VS1000BB system to a party in Bolivia for US$200,000 whereas a standard VS1000 system is priced at US$600,000.

"With best regards, Raj." Address: Founder, ProSoya Corp., 26 Annette St., Huevelton, New York 13654. Phone: 315-244-7030.

2986. AGP–A Cooperative. 2006. Annual report to members: Adding value to your harvest. 12700 West Dodge Road, P.O. Box 2047, Omaha, Nebraska 68103-2047. 33 + 4 p. 28 cm.
• ***Summary:*** Net sales for 2006 (year ended Aug. 31) were $2,360.484 million, up 0.5% from $2,348.167 million in 2005. Earnings from continuing operations (before income taxes): $75.136 million, up 49.2% from the $50.360 million in 2005.

AGP now has marketing offices in: Pecs, Hungary. Jakarta, Indonesia. Queretaro, Mexico. Manila, Philippines. Singapore. Komarno, Slovakia. Bangkok, Thailand. Istanbul, Turkey. Hanoi, Vietnam.

This was "the second best year of earnings in AGP's 23-year history... Accordingly, your Board of Directors approved total patronage refunds of $32.6 million, designating 30 percent to be paid in cash again this fiscal year... [and] equity redemption for fiscal 2006 of $28 million, making the two year total of equity redeemed $56 million. Cash patronage, equity redemption and value-based premium programs totaled over $43 million dollars for fiscal 2006, also the second best in the history of your cooperative" (p. 5).

Today AGP's "owners are 205 local cooperatives and six regional cooperatives, representing 250,000 farmers from 15 states throughout the United States and Canada" (p. 7). Note: Technically AGP represents 250,000 "producers." A producer can refer to either a farmer or a land-owner, and both can be a member of a local cooperative.

"Record premiums paid: Participants in AGP's value-based premium programs–oil and protein components, Vistive soybeans, and non-GMO soybeans–earned a record $6.4 million in premiums from those programs" (p. 9).

Note: Talk with Bill Lester, formerly of AGP. 2007. Feb. 24. AGP will pay its member co-ops total patronage refunds of $32.6 million this year. 30% of this amount ($9.78 million) will be paid in cash (from this year's earnings), and the remaining 70% ($22.8 million) comes from retained earnings (or equity) (from past years' earnings), and is called "equity redemption." AGP is redeeming the old equity that the member co-ops owned in it. Retained earnings is the members co-ops' investment in AGP. On the AGP balance sheet, this equity appears as a debt to individual member co-ops. For example: Heartland Co-op, Des Moines, Iowa. In 1999 AGP owes it $12,300. In 1998 AGP owes it $13,465, etc. right up to the current year. This debt is paid when the members' equity in the company is redeemed / allocated. The oldest debts to each member co-op are always paid first, and they are always paid before Dec. 31 each year.

A local member co-op's total earnings for any given year consists of its own earnings plus the earnings it gets from AGP. By law, the co-op must pay 20% of its net earnings that year in cash to its producer members. A typical local co-op pays 30% of that year's earnings in cash to its member producers (since that cash takes care of the tax liability) and keeps 80% as "retained earnings." Each member producer must pay the income taxes on these retained earnings–even if he doesn't get the money. One of the problems in the past is that sometimes the producer doesn't receive enough cash from his co-op to pay the tax on the "retained allocated earnings." When the producer finally gets paid his retained earnings, it is tax free.

Retained earnings is the way AGP borrows money from its co-op members to finance its ongoing operations. It takes a certain amount of cash or "working capital" to operate a business. AGP has two choices: Keep it as "retained earnings" from the membership or borrow it (as from a bank). Presently AGP has about 7 years of retained earnings (back to about the year 1999) that it has not yet paid to its co-op members. Yet this is perpetually rotating, or "rolled forward" as the oldest debts are paid back each profitable year to the co-op members. This system of paying the oldest debts first is also a way of transferring money form older producers (some of who may no longer be living) to current producers. Well-run cooperative soybean processors, such as AGP, have a relatively small number of years of unpaid retained earnings (7). Address: Omaha, Nebraska. Phone: (402) 496-7809.

2987. Dietz, John. 2006. Biodiesel ignites up north: Canadian biodiesel use is slated to grow 10-fold in the next five years. *Corn and Soybean Digest.* Oct. p. 28.
• ***Summary:*** As of Jan. 2006, Canada's production capacity for biodiesel was 26.4 million gallons. In Nov. 2005, Canada's first commercial scale biodiesel manufacturing plant was commissioned in Montreal by Rothsay Biodiesel, the rendering division of Maple Leaf Foods. Capacity: 9.2 million gallons a year.

Canada's second commercial scale biodiesel plant, Biox Corporation, Inc. at Oakville, Ontario, was schedules to begin full production before September (last month). Capacity: 15.8 million gallons.

Millegan Biotech, a farmer-owned cooperative in Saskatchewan is developing a biodiesel plant that will use canola oil as a feedstock. Capacity: 0.5 million gallons. One key feature of this biodiesel will be its "cold pour point" (desirable in cold climates) of -15ºC (5ºF), which is much lower than the U.S. standard of -7ºC (19.4ºF).

2988. Hain Celestial Group, Inc. (The). 2006. Annual report 2006. Melville, New York. 8 + 55 p. Nov. 28 cm.
• ***Summary:*** Net sales for the year ended 30 June 2006 were $738.6 million, up 19.1% from 2005. Net income in 2006 was $39.6 million, up 19.6 from 2005.

Acquisitions and divestitures: In Dec. 2005 acquired Spectrum Organic Products and their brands Spectrum Naturals and Spectrum Essentials. March 2006 acquired the Queen Helene Batherapy, Shower Therapy, and Footherapy brands of skin care, hair care, and body care products. "We established a foothold in the United Kingdom in April with the purchase of a fresh prepared foods business, and in June [June 12] we acquired the Linda McCartney brand (under license), a frozen meat-free [vegetarian entrees] business" from the H.J. Heinz Co., for about $6.6 million, including its manufacturing facility in Fakenham, England.

At the beginning of fiscal 2007 Hain divested Biomarché, a Belgium-based provider of fresh organic fruits and vegetables, to focus on branded products that complement our growth strategy in Europe. Note: Hain's 2007 Annual Report states (p. F-43) that on 31 Aug. 2006 Hain complete the sale of Biomarché for about $8.3 million (6.5 million euros).

Most of the report is Form 10-K/A. Accompanying the annual report is a "Notice of Annual Meeting of Stockholders and Proxy Statement" (42 p.). Irwin Simon, the founder and CEO, age 47, had the following annual compensation: Salary: $1.1 million. Bonus: $1.7 million. Address: 58 South Service Road, Melville, New York 11747-2342. Phone: 631-730-2200.

2989. Lyddon, Chris. 2006. Global grain trade review: IGC [International Grains Council] predicts sharp drawdown in grain stocks, particularly wheat, in 2006-07. *World Grain* 24(11):32-36, 38-39, 42. Nov.
• ***Summary:*** A table titled "Global grain trade activity (in 1,000 tonnes)" gives the following statistics for soybeans: 2005-06 Top exporters: 1. Brazil 26,750. 2. U.S. 25,719. 3. Argentina 7,300. 4. Paraguay 2,600. 5. Canada 1,267. World total 65,195 (unchanged).

Top soybean importers: China 27,700. E.U.-25 14,100. 3. Japan 4,050. 4. Mexico 3,725. 5. Taiwan 2,300.

Also gives the top 5 importers and exporters of soybean meal for 2005-06. Exporters include: 4. India 3,500. 5. Bolivia 870. Total 51,062 (+9%). Address: European editor; chris.lyddon@ntlworld.com.

2990. PETA [People for the Ethical Treatment of Animals]. 2006. 4th annual PETA proggy awards for progress–Best New Faux Meat Product: Gardein, made by Garden Protein International Inc. of Richmond, BC, Canada.
• ***Summary:*** This color award, 8½ by 11 inches, shows a frog leaping from left to right and is signed by Ingrid E. Newkirk, President. The PETA proggy awards are presented at the end of each year in late December. This one was awarded in late 2006. PETA is based Norfolk, Virginia.

2991. Ben Ounis, Wassef. 2006. Séparation des fractions du phytosérum de tofu par électrotechnologies membranaires et sa valorisation comme milieu de culture [Separation of the fractions of the phytoserum of tofu membrane electrotechnologies and its evaluation as a culture medium]. Thesis (M.Sc.), Université Laval (Laval University), Quebec, Canada. [Fre]*
Address: Laval University, Quebec City, Quebec, Canada.

2992. Orcutt, M.W.; McMindes, M.K.; Chu, H.; Mueller, I.N.; Bater, B.; Orcutt, A.L. 2006. Textured soy protein utilization in meat and meat analog products. In: Mian A. Riaz, ed. 2006. Soy Applications in Food. Boca Raton, Florida, London, New York: CRC Press (Taylor & Francis Group). [x] + 288 p. See p. 155-84. [11 ref]
• ***Summary:*** Contents: Introduction. Textured soy protein products. Soy grits. Textured soy flour. Textured soy protein concentrates. Textured isolated protein products. Textured vegetable protein blends. Meat coatings. Regulations governing the use and labeling of products containing textured vegetable protein products: United States, People's Republic of China, Canada, Japan, European Union. Meat product formulations containing textured soy protein ingredients: Preparation procedure for raw frozen beef patties, preparation procedure for precooked beef patties, preparation procedure for chicken patties, preparation procedure for beef meat loaf, preparation procedure for beef chili, preparation procedure for reduced-fat pepperoni. Meat analog food products: Meat analog product formulations (preparation procedure for vegetarian patty nugget, preparation procedure for vegetarian chili). Summary.

Tables: (1) Water-holding capacities and cooked texture of textured soy protein concentrate flake, crumble, and granule particles. (2) Texture comparison of different treatments. (3) Characteristics of textured soy protein products. (4) Characteristics of beef patty formulated to contain various levels of hydrated textured soy protein concentrate. (5) Minimum meat content requirements for selected meat and poultry products produced and sold in the United States. (6) Summary of use of textured vegetable protein meat products having a standard of identity. (7) Minimum meat requirements for selected Canadian standardized meat products. (8) Minimum meat requirements for Japanese agricultural standards. (9) Contents of raw frozen beef patties (U.S. formulation). (10) Contents of precooked beef patties (U.S. formulation). (11) Contents of chicken patties (U.S. premium formulation). (12) Contents of U.S. beef meat loaf. (13) Contents of beef chili. (14) Contents of reduced-fat pepperoni. (15) Contents of chicken-flavored vegetarian patty nugget. (16) Contents of vegetarian chili. Address: All: The Solae Company LLC, St. Louis, Missouri.

2993. The beans, lentils & tofu gourmet. 2006. Don Mills, Ontario, Canada: Robert Rose. 191 p. Illust. (color). 26 cm. *
Address: Canada.

2994. Tibbott, Seth. comp. 2007. Tofurky brand products overview: Natural foods segment. Hood River, Oregon: Turtle Island Foods, Inc. [36] p. 28 cm. [1 ref]
• ***Summary:*** A full-color booklet bound with a handsome, black ProClick plastic spine. On the front cover: "1980-2006: 26th anniversary Turtle Island Foods, Inc." "Sales data from: SPINscan Natural and SPINscan Conventional. 52 weeks ending December 30, 2006. All statistics are for the total U.S. market.

Contents (unnumbered pages): (1) "Turtle Island Foods honored by Inc. magazine: 2,240th fastest growing small business in the USA (of 6 million total). 159.7% growth rate over last 4 years. 57th fastest growing food and beverage company in the USA. 19th fastest growing food processor.

(2) About Tofurky products: 100% vegan. Based on organic soy products. Use non hexane extracted proteins. VejNews. Winner veggie awards–Best meat substitute.

(3) Natural foods market without Whole Foods (which no longer shares sales info with the industry). Growth of top ten brands ranked by dollar volume. Frozen and refrigerated meat alternatives. 52 weeks ended Feb. 24, 2007. Category: $35.5 million. Growth: 4.7%. Turtle Island is the fastest-growing brand: 16.1%, followed by Quorn, Nates, Amys Kitchen, Morningstar Farms, Gardenburger, and Yves.

Lightlife, Boca Foods, and White Wave all have negative growth.

(4) Natural foods market. Frozen and refrigerated meat alternatives. Top ten of 478 items by dollar volume. 52 weeks ending Dec. 30, 2006. #1. Quorn Chicken Style Nuggets. 10.6 oz. $1,507,537. 5.6%. #2. Turtle Island Tofurky Italian Sausage (organic) 14 oz. $1,262,616. 25.7%. #3. Quorn Chicken Style Patties. #4. Lightlife Gimme Lean Sausage. #5. Quorn Veg. Naked Chicken Cutlet. #6. Turtle Island Tofurky Deli Slices, Hickory Smoked. 5.5 oz. $1,131,760. 19.2%. #7. Lightlife Smart Dogs. #8. Boca Original Patties Chicken Natural (4-pack). #9. Amys Burger California Veggie. #10. Quorn Meat Free Chicken Tenders.

(5) Natural foods market. Refrigerated meat alternatives, Top 10 of 260 items by dollar volume. 52 weeks ending Dec. 30, 2006. Turtle Island currently as the #1, #3, #9 and #10 best selling items among the 260. They are: Tofurky Italian Sausage. Tofurky Deli Slices Hickory Smoked. Tofurky Deli Slices Oven Roasted. Tofurky Kielbasa (sausages).

(6) Tofurky deli slices: Six features, incl. "Organic tofu based." The six types of deli slices are: Oven roasted, Hickory smoked, Peppered, Italian deli, Cranberry & Stuffing, "Philly-style" steak.

(7) Tofurky deli slices. Bar charts of refrigerated meatless deli sales, 2001-2006. For each year are given: Competitor #1. Competitor #2. Turtle Island. Overall category. "While the competition sales have been flat, Turtle Island has grown the subcategory 72 and has become the #1 brand.

(8) Deli slice standings. (9) Tofurky gourmet sausages. (10) Frozen and refrigerated meat alternatives. (11) Tofurky Jurky: 5 features.

(12) Top 10 jerky items (meat and meatless)–SPINscan natural channel. 52 weeks 2nding Feb. 24, 2007. The category is 8.3 million. There are three vegetarian jerkys among the top 10. Tofurky Jurky Original is the #2 seller and Tufurky Jurky Peppered is #7. The other vegetarian brand (#6 seller) is Primal Strips Seitan Teriyaki.

(13) Tofurky "foot long" veggie dogs: 5 features, incl. organic tofu based. (14) "Open mouth, insert foot."

(15-17) Turtle Island tempeh: Five features.

(18-22) Happy Tofurky Day: Five features.

(23-35) Glossy color sell sheets, printed on both sides, with the following titles: (23-24) Happy Tofurky Day! (25-26) Brave New Tempeh. (27-28) Tofurky Jurkey. (29-30) Frankly speaking Tofurky Franks & Links are the best! (31-32) There's 3 big new dogs in the house. (33-34) Go beyond the bun: Introducing Tofurky 'foot long' veggie dogs. (35-36) Tofurky deli slices: New look. Other Turtle Island glossy color sell sheets. Address: Founder and President, Turtle Island Foods, P.O. Box 176, Hood River, Oregon 97031.

2995. **Product Name:** President's Choice Blue Menu [Mediterranean Meatless Chicken Strips, Meatless Beef Strips].
**Manufacturer's Name:** Garden Protein International Inc.
**Manufacturer's Address:** 12751 Bathgate Way, Richmond (near Vancouver), BC V6V 1Y5, Canada. Phone: 604-278-7300.
**Date of Introduction:** 2007. January.
**Ingredients:** Chicken breasts: Water, wheat gluten, soy protein isolate, malted barley extract, natural flavour, yeast extract, garlic powder, onion powder, canola oil, evaporated cane juice, salt, sweet red bell pepper flakes, spice, malic acid, vitamins and minerals [the name of each is given], pea protein, carrot powder.
**Wt/Vol., Packaging, Price:** 227 gm. in plastic bag.
**How Stored:** Refrigerated.
**New Product–Documentation:** Packages sent by Yves Potvin of GPI. 2008. Oct. 28. Plastic seam-seal bag. 7.75 by 7.25 inches. Bluish green, dark blue, light blue, red and black on light blue. "Loblaws Inc.," Montreal, Toronto, and Calgary. A color photo on the front shows the Chicken Strips with lettuce and veggie strips in a tortilla wrap and the Beef Strips with veggies on bed of rice.

On the back panel are Nutrition Facts, ingredients list and recipe ideas. On the lower back panel is the logo of the manufacturer, Garden Protein International Inc. (in English and French) on a white background: "Made with Gardein. Protein from the garden. www.gardein.com. Gardein is a registered trademark of Garden Protein International Inc."

2996. *Ontario Soybean Growers Soybean Report.*2007. A commitment to biofuels. Jan. p. 1.
• ***Summary:*** "Recent federal announcements have committed to regulating the use of renewable fuels in Canada and deliver $345 million to assist farmers and rural communities to seize new market opportunities in the agricultural bioproducts sector.

"The Honourable Rona Ambrose, Minister of the Environment, announced the Government would regulate an annual average renewable content of five per cent in gasoline by 2010. She added the Government intends to regulate a two per cent requirement for renewable content in diesel fuel and heating oil by 2012.

"The Honourable Chuck Strahl, Minister of Agriculture and Agri-Food and Minister for the Canadian Wheat Board, announced $345 million for two agriculture programs that will help bolster the development of biofuels and other bioproducts. The Agricultural Bioproducts Innovation Program and the Capital Formation Assistance Program for Renewable Fuels Production are designed to create new market opportunities for Canada's agricultural producers.

"'Advancing Canada's bio-based economy is a priority for Canada's New Government,' said Minister Strahl.

'These programs are an important step in achieving the government's objective of five per cent renewable content in transportation fuels by 2010, while also creating new economic opportunities for our farmers and agricultural sector.'" Address: Guelph, ONT, Canada.

2997. *Ontario Soybean Growers Soybean Report.*2007. Soybean rust update. Jan. p. 1.
• ***Summary:*** "In the fall of 2006, one of the most important questions surrounding soybean rust (SBR) in North America was answered. Over the course of a few months, under the proper weather conditions soybean rust developed over a very large geographical area. From October 1st, 193 new counties tested positive for SBR in the southern and the midwestern United States. The majority of these finds were on late season soybeans and or double crop beans. On October 26th, SBR was found on soybeans in Lafayette, Indiana (home of Purdue University). Lafayette is 165 miles south of Chicago and this represents the most northern find of SBR in the US ever.

"The total numbers for SBR as of December 21, 2006 for this year's soybeans are 231 different counties in 15 states and if you include kudzu (the over wintering host) the number increases to 274 counties over those same 15 states. This late spread of SBR from Louisiana up the Mississippi river and the Ohio River Valley was attributed to the prolonged stormy weather that occurred in late September that brought persistent rain showers and thunderstorms into Ontario and the midwestern United States." Address: Guelph, ONT, Canada.

2998. Anderson, G. Harvey. 2007. Glycemic Index: Pros and cons. *Soy Connection* 15(1):1, 3. Winter.
• ***Summary:*** In the past, carbohydrates (CHOs) have been "classified by their molecular size as sugar, oligosaccharides, polysaccharides, and polyols (hydrogenated CHOs). However the goal [proposed in the early 1970s] of having a physiologic measure of the impact of carbohydrate foods on blood glucose was motivated by the desire to try to provide dietary advice for the control of blood glucose in diabetic persons."

So the concept of carbohydrate exchange was developed. This "approach was put on a more quantitative basis as a result of the development of the glycemic index (GI) by Jenkins." Low GI is less than or equal to 55. Moderate GI is 56-69. High GI is 70+. "Carbohydrates that break down quickly during digestion have the highest glycemic index, and the blood glucose curve is high." "The glycemic load (GL) of foods, meals, and diets is calculated by multiplying the GI by the amount of carbohydrate in the food." This whole area has become quite controversial. Address: PhD, Prof. of Nutritional Sciences and director of the program in food safety, nutrition and regulatory affairs, Univ. of Toronto, Ontario, Canada.

2999. Brown, Allan; Brown, Susan. 2007. Re: Photographs of making tempeh at McDonalds Corners, Ontario, Canada. Letter (e-mail) to William Shurtleff at Soyinfo Center, March 29-30. 14 p.
• ***Summary:*** Each of these color digital photos is accompanied by a caption or explanation. In chronological they are:

2005 summer–Allan and son Casey Brown cranking a wooden grain cleaner / winnower by hand. They soon motorized it.

2005 June–A color poster celebrating Noble Bean's 25th anniversary of making tempeh commercially at R.R. #1, McDonalds Corners, ON K0G 1M0 Canada. Susan and Allan founded the company that June, having previously lived with Farm folks (and made tempeh) in Wisconsin, Tennessee, and Lanark, Ontario, Canada. To celebrate the occasion, Allan writes (March 2007): "We did have a toast and a large feeling of accomplishment. We advertised and ran stories in 3 mags [magazines] that get out all over Ontario... Then we ate some chocolate and had a distinct lightness of being experience."

2005 summer–Rosemary Kotze, a neighbor, with the wooden grain cleaner.

2006 Jan/Feb.–Noble Bean headquarters in the snow.

2006 spring–Susan and Allan Brown, pioneer tempeh makers in Canada, standing together, his arm around her shoulder, in their tempeh shop. Caption: "The boss and her assistant."

2006 spring–Susan Brown carrying a tray of burger size tempeh to incubator; each plastic bag makes nine 3 x 3-inch burgers.

2006 spring–Jake Dixon cranking cooked soybeans out of the kettle with a cool custom colander (under sheet of stainless steel that is used as a ramp between kettle and centrifuge).

2007 Jan.–Jake Dixon cleaning the centrifuge.


2007 March 18–Noble Bean's tempeh products displayed on a table at Manger Santé Montreal. Note recent Kosher certification symbol OVH (Ottawa). Address: Founders, Noble Bean, R.R. #1, McDonalds Corners, ON K0G 1M0 Canada. Phone: 613-278-2305.

3000. *Ontario Soybean Growers Soybean Report.*2007. Connecting producers with programs. March. p. 1.
• ***Summary:*** "An update from Agricorp: Over the past three years, Agricorp has delivered approximately $1.5 billion in government funds to Ontario farmers. We are committed to connecting Ontario soybean growers with programs that help manage risk, and to upholding the high-quality customer service you've come to expect from us."

The CAIS [Canadian Agricultural Income Stabilization] program: We have been working hard to deliver the CAIS Inventory Transition Initiative (CITI) and the Ontario Inventory Transition Payment (OITP). Agricorp is planning to complete the delivery of 2003 and 2004 program years by the end of February. Statements showing how benefits are calculated will be available for all CAIS participants shortly after.

"We have devoted significant resources to this effort and are in line with other jurisdictions. To date, we have issued over $69 million under CITI and over $44 million under OITP. We anticipate roughly 7,000 participants from the 2003 program year and roughly 10,000 participants from the 2004 program year will receive these additional benefits. To date, we have mailed over 96 percent of the 2003 cheques and 70 percent of the 2004 cheques."

Note: According to the CAIS website: "As of the 2007 Program Year, CAIS is being replaced by AgriStability and AgriInvest." Address: Guelph, ONT, Canada.

3001. Crowell, Lewis. 2007. Shocked! *Acres U.S.A.* 37(4):7. April.
• ***Summary:*** "I am shocked that your editorial staff endorses the production of biofuels. Where would we find the acreage to feed even a small fraction of our nation's energy appetite."

"Recent USDA-based studies estimate that to meet only 7% of gasoline production, we would have to convert all U.S. crop land to corn. This excludes biodiesel and all food crops. Even a fraction of this production would leave us a countryside of 'fuel farms,' highly mechanized operations requiring vast quantities of water, fertilizer, and pesticides. As for the environmental costs: would the highly touted 'biofuel economy' be worth eliminating our natural and cultural landscapes. making even the worst urban sprawl look tame?

"A few years ago my wife and I noticed large soybean fields replacing many picturesque hay fields and pastures in southern Ontario. Recently, we observe entire regions throughout rural Ontario have become rolling seas of

soybeans and corn–many from horizon to horizon. In the fall, herbicide 'plowing' [no-till] turns most of these fields into grey poisoned moonscapes. We have also notice many wildlife refuges have leased big chunks to crop growers... Millions of acres of heavily sprayed corn and soybean fields leave absolutely no room for wildlife." Address: East Aurora, New York.

3002. Larivée, Josée. 2007. Profil: Yves Potvin [Profile: Yves Potvin]. *Le Must Alimentaire (Quebec, Canada)* 1(6):16-20. March/April. [Fre]
• ***Summary:*** Two color photos show Yves Potvin, and several others show his Gardein being used in various ways.

3003. *Ontario Soybean Growers Soybean Report.*2007. How do you put soy on your plate? April. p. 1.
• ***Summary:*** "April is Soyfoods month, and Canada's soyfood industry is inviting Canadians to share their favourite soy recipes for a chance to win prizes.

"'How do you put soy on your plate?' is a contest being run by Soyfoods Canada–an organization that represents Canadian soyfood companies, soy ingredients, and soybean farmers. With a mandate to promote soy, one role of the organization is to provide soy recipes to consumers and to a large portion of nutritionists, dieticians, and cardiac care centres within Canada.

"The recipe contest–running through the month of April–seeks recipes that include soyfoods that are available for purchase within Canada. Submitted recipes will be posted on the organization's website, www.soyfoodscanada.com. Five recipes will be selected for inclusion in Soyfoods Canada's next recipe brochure, and one winning recipe will receive a prize package from Canada's leading soyfood companies.

"For more information, visit www.soyfoodscanada.com." Address: Guelph, ONT, Canada.

3004. Gupta, Raj. 2007. New developments at ProSoya worldwide (Interview). *SoyaScan Notes.* June 27. Conducted by William Shurtleff of Soyinfo Center.
• ***Summary:*** A very interesting and far-reaching discussion including: (1) Assoy in Russia, Firouz Zanjani and Alexander Podobedov. (2) Soymilk factory in Iran, Andre Ladoucer (he commissioned the plant but is no longer active in the soymilk business), and the ProSoya agent in Iran. (3) People in the Middle East have a palate very similar to that of people living in India; both like soy yogurt. (4) ProSoya's best small machine for making soymilk is the one that makes 2,000 liters/hour, which has a vacuum deodorizer. The basic plant without packaging equipment costs $60,000. A chiller costs an additional $15-20,000. Yogurt incubation tanks are extra. (5) ProSoya's continuous curding machine which makes 1,000 kg/hour of tofu; it costs about $135,000. (6) ProSoya's plant in New York is still in operation. It makes 2 tankers a week of soymilk, all of which is sold in Canada. (6) Many taste tests show that ProSoya's SoNice is the best tasting soymilk in the world. The most important thing for soymilk to become a mainstream product is to improve its taste. (7) Raj Gupta's discussions and negotiations with major companies that sell soymilk: Unilever (Ades, Adez), Coca Cola and Odwalla. All these companies agree that ProSoya's soymilk is the best tasting. It is very frustrating that marketing is of top importance to all, while product quality is much or relatively low importance. (8) The soymilk market in North America is now worth about #1,000 million, with 90% of the sales in the USA and 10% in Canada, where Soyaworld is the leading player, with about 40% of the market. Address: President and CEO, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

3005. **Product Name:** Garden Goodness: 6 Veggie Chick'n Breasts, Lightly Seasoned.
**Manufacturer's Name:** Garden Protein International Inc.
**Manufacturer's Address:** 12751 Bathgate Way, Richmond (near Vancouver), BC V6V 1Y5, Canada. Phone: 604-278-7300.
**Date of Introduction:** 2007. June.
**Ingredients:** Water, soy protein, Canadian wheat protein, modified cellulose, natural flavors, potato starch, expeller pressed canola oil, organic evaporated cane juice, yeast extract, spices, sea salt, pea protein, carrot fibre, organic beet root fibre, vitamins and minerals [each one is named].
**Wt/Vol., Packaging, Price:** 700 gm. Paperboard box. Six individual packs.
**New Product–Documentation:** Packages sent by Yves Potvin of GPI. 2008. Oct. 28. Paperboard box. 9 by 6 by 2½ inches. Black, yellow, green, red and white. A color photo on the front panel shows a Chick'n Breast sliced in half on a bed of lettuce. On the front and back panels is the logo of Garden Protein International Inc. "Made with Gardein. Garden grown protein." side panel: "No artificial flavors, colors or preservatives. Manufactured for Its All Good Foods, Inc., Richmond, V6V 1Y5 Canada. www.gardein.com. Product of Canada. Copyright 2008." At one end panel: "Heat & serve: Ready in 2 minutes." On the back panel are Nutrition Facts, ingredients list and recipe ideas.

3006. Gupta, Raj. 2007. The purchase of SoyaWorld by Sanitarium Foods (Interview). *SoyaScan Notes.* July 24. Conducted by William Shurtleff of Soyinfo Center.
• ***Summary:*** SoyaWorld is now completely owned by Sanitarium Foods of Australia. First Sanitarium bought the 47% of SoyaWorld owned by Sunrise Soya Foods. Later they bought the remaining 53% owned by Saputo. The

person who knows the exact dates is Maheb Nathoo, who is still president of SoyaWorld.

SoyaWorld still makes two soymilk products: (1) Soy Good, made from soy protein isolates, is made using the formula developed by Sanitarium Foods. It is very heavily promoted in Canada, using both TV and print, and has about 60% of the Canadian market, but because it is so heavily promoted and costs more to make, Raj thinks that it is presently not as profitable as the other product, So Nice. (2) So Nice is made from whole soybeans, using the ProSoya process. It is never promoted or advertised by Sanitarium Foods. It has about 40% of the Canadian market.

The fact that So Nice is outsold by So Good no longer effects Raj's income, because the exclusive agreement between ProSoya and SoyaWorld (from which ProSoya earned royalties) has expired. SoyaWorld now has non-exclusive use of the process and ProSoya does not get any royalties.

It is difficult to do blind taste tests comparing these two products, in part because so many people already have developed. There are also issues about using another person's branded product in a taste test and publicizing the results. Address: President and CEO, ProSoya Inc., 2-5350 Canotek Road, Ottawa, ONT, K1J 9N5, Canada. Phone: 613-745-9115.

3007. Joe, Peter. 2007. Sale of Sunrise's share of SoyaWorld Inc. and starting a new tofu plant in Toronto, Canada (Interview). *SoyaScan Notes.* July 24. Conducted by William Shurtleff of Soyinfo Center.
• ***Summary:*** In Dec. 2000 Peter Joe sold his 47% share of SoyaWorld to Sanitarium Foods of Australia.

He recently built a new tofu manufacturing plant in Toronto, Ontario. It began production in March 2002. All is well for Peter and Sunrise. The market for tofu in Canada is growing. Address: General Manager, Sunrise Soya Foods, 729 Powell St., Vancouver, BC, V6A 1H5 Canada.

3008. Reuters. 2007. SunOpta Inc. acquires operating assets of ProSoya Corporation located in Heuvelton, New York (News release). Aug. 7.
• ***Summary:*** SunOpta (incl. Sunrich), headquartered in Canada, announces that it has acquired a soymilk manufacturing plant in Heuvelton, New York from ProSoya Corporation. The plant (incl. building, machinery, and equipment) was acquired for cash.

Allan Routh is president of the SunOpta Grains and Foods Group. Steve Bromley is president and CEO of SunOpta.

3009. Wallace, Kate. 2007. Meatless meals for the meat lover. *Telegraph-Journal (New Brunswick, Canada).* Aug. 9. p. D1 (Magazine).
• ***Summary:*** Potvin has created a line of meatless, "center of the plate" products named "It's All Good," including veggie chicken breasts in herb dijon and Tuscan tomato marinade, and seasoned veggie beef strips. A photo shows Yves Potvin standing by a produce case.

3010. Charles, Sean. 2007. Soybean demand continues to drive production (Document part). In: Linda Starke, ed. 2007. *Vital Signs 2007-2008: The Trends that are Shaping Our Future.* New York, NY: W.W. Norton & Co. 166 p. 166 p. See p. 22-23; 13, 24, 40. [28 ref]
• ***Summary:*** Figures show: (1) Graph of world soybean production, 1961-2005. It has risen steadily and continues to accelerate. In 2005 world soybean production reached a record 214 million tons.

(2) Pie chart of soybean production: Top seven countries, 2005 (in million tons): 1. United States 83.4. 2. Brazil 53.1. 3. Argentina 38.3. 4. China 16.8. 5. India 6.3. 6. Paraguay 3.5. 7. Canada 3.2. Note that the top 4 countries accounted for 90% of world production. Over the past 25 years, U.S. market dominance has eroded, as Brazil and Argentina have risen. "The United States produced 60% of the world's soybeans in 1980 but only 35% in 2005.

(3) Graph of world soybean harvested area, 1961-2005. It has risen steadily and is accelerating.

A table shows "World soybean production 1961-2005" (million tons). It grew from 27 in 1961 to 59 in 1973, to 101 in 1985, to 160 in 1998, to 2005 in 2004 and 214 in 2005.

The declining role of the USA as an "exporter can be traced to increased competition from South American producers, growing domestic competition with corn, the production of biodiesel, and the resistance in some markets to genetically modified (GM) soybeans."

A major source of information is FAO's FAOSTAT Statistical Database, at faostat.fao.org. Address: Worldwatch Inst., 1776 Massachusetts Ave., N.W., Washington, DC 20077-6628.

3011. *Ontario Soybean Growers Soybean Report.*2007. Chuck Strahl turns back on Ontario farmers, rejects RMP: Conservative Agriculture Minister wants producers beholden to ad-hoc government aid instead. Aug. p. 1.
• ***Summary:*** "The federal Conservative government has sold out farmers across Canada by refusing to participate in the proposed Ontario Risk Management Program (RMP), said the Ontario Grains and Oilseeds Safety Net Committee (Ontario G&O).

"Comments by federal Agriculture Minister Chuck Strahl published yesterday indicate that Ottawa will not participate in the three-year pilot RMP for grains and oilseeds farmers in Ontario, announced last month by the provincial government's Agriculture Minister Leona Dombrowsky.

"'After 18 months on the job, Minister Strahl still thinks farm-income programming is a one-size-fits-all proposition, where what's good in Saskatchewan has to work in Ontario, or it's just too bad,' said G&O chair Leo Guilbeault. 'What is astonishing is that the federal government actually has the surplus money available to fully fund RMP, while the provincial government has a much tighter treasury.'

"The RMP is an insurance-based program designed to sustain farm incomes during times when world commodity prices are driven to uneconomical levels by international subsidies. World farm subsidies are the biggest cause of declining farm incomes over the past five years. The provincial government had intended the costs to be shared on the customary 60-40 basis between Ottawa and Queen's Park respectively.

"By refusing to participate as a federal partner in the Ontario RMP, Minister Strahl has told farmers across Canada his government won't help them develop regional programs that are tailored to their specific needs. This concept, known as regional flexibility, is common in other industrial sectors.

"'The message is clear: Minister Strahl wants farmers beholden to the federal government's ad hoc, politically motivated emergency aid,' Guilbeault said. 'The whole point of RMP is to allow farmers to plan for the long-term, without waiting for some politician from Ottawa to show up–usually three years too late–with a cheque for a photo op.'

"'We are families with deep roots in the countryside, and we're proud to grow the food that feeds our cities,' Mr. Guilbeault added. 'This RMP is about sustainability, not just for farmers, but for rural communities.'

"Ontario G&O wants to know if Ontario Progressive Conservative Leader John Tory supports the position of his federal cousins in Ottawa.

"'Mr. Tory made a big deal about supporting RMP back in June when he announced his party's agriculture policy. Mr. Tory should demonstrate that support by calling on his federal cousins to adopt RMP today.'" Address: Guelph, ONT, Canada.

3012. Ward, Valerie. 2007. The surge in soy: Changing consumer attitudes toward this plant protein have made soy an increasingly popular product ingredient. *Food in Canada.* July/Aug. p. 47-48.

3013. *Ontario Soybean Growers Soybean Report.*2007. The McGuinty government delivers for Ontario's 25,000 grain and oilseed farm families. Sept. p. 1.
• ***Summary:*** "Ontario grain and oilseed producers applauded the McGuinty government for following through on its commitment of a pilot Risk Management Program (RMP). Announced back in June, the program will be operational this fall, with the government accepting applications this September.

"'This is tremendous step forward. The McGuinty government has listened to farmers, and is now delivering a program that will help us find some stability in the next few years,' said Leo Guilbeault, chair of Ontario Grain and Oilseeds Safety Net Committee. 'For years our producers asked for a flexible, regional-based support program. Today the Ontario government came through for farm families.'

"Mr. Guilbeault was on hand for the announcement made by Ontario's Premier Dalton McGuinty, and the Minister of Agriculture, Leona Dombrowsky. The announcement was made at the farm of Lloyd Crowe, grain & oilseed farmer from the Picton area.

"RMP is an insurance-style program with costs shared by farmers (through premiums) and the provincial and federal governments. It will kick in when a commodity's average price falls below an agreed-upon floor price per bushel, delivering an income-support payment to participating farmers. In years where prices are sustainable, there will not even be a need for payouts.

"The RMP is intended to give farm families the planning tools to carry on with their livelihood in the face of a depressed international market. "The government could have done what it has in the past by making a huge announcement of ad-hoc aid dollars. We have been telling them for a long-time now that ad-hoc announcements may make good television, but they are rarely effective. We advocated for RMP because it can help ensure long-term stability for our producers. We thank Premier McGuinty, Minister Dombrowsky and the government's rural caucus for listening to us. Now we need the federal government to do the same," Guilbeault said.

"RMP is designed so that producers will supply one-third of the total funding, while the federal and provincial governments will invest the remaining two-thirds based on the 60-40 funding formula.

"'Our hope is that the federal government will come to see that a flexible, regional-based model works best for farm families. To date the Harper government in Ottawa has resisted producers, opting instead to put a new sheen on failed support programs like CAIS. This announcement should help convince the federal government that regional-based flexible programs can work.'" Address: Guelph, ONT, Canada.

3014. Debruyne, Ignace. 2007. Global product opportunities: Value creation using soy protein. Paper presented at Unlocking the Value of Soy Protein in Consumer Foods, Guelph Food Technology Centre (GFTC)–Soy 20/20, Brampton, Ontario, Canada. 108 p. Presented 18 Oct. 2007.
• ***Summary:*** Contents: 1. Why consuming soybean foods?: Different objectives for different stakeholders, major drivers

and objectives–Value creation. 2. Soybeans, soy protein and soyfood market: Soy protein products. soyfood products. 3. Similar markets: EU, USA, Canada. 4. Value creation through innovation and product development: IP [identity preserved] and non-GM supply, soy as a functional ingredient, novel food product applications. 4. Value creation through marketing & communication: Nutrition & health communication. 5. Conclusions. The page titled "Soy processors & supporting services: a vast list of players" [in Canada] (p. 32) includes: Cargill Texturixing Solutions, Concord Sales, Galaxy Foods, Garden Protein International, Guelph Food Technology Centre, Gain Celestial Canada, Hilton Soy Foods, Internova, La Soyarie, Leading Blends, Maple Leaf Foods, N2 Ingredients, Noble Bean, Nutri-Soya foods, Nutritel Food Technologies, Oléangerie, Okanagan's Soya, Ontario Soybean Growers, Parmalat Canada, Prograin, Protenergy Natural Foods, Protex Foods, Roy Legumex, Sol Cuisine, So Soya, Southwest Ag Partners, Soya Dairy, SoyaWorld, Soyfoods Canada, Soylutions, SunOpta, Sunrise Soya Foods, Tayo Foods, Tetra Pak, Thompsons, Tixena Int'l Marketing, White Wave.

Note: This PowerPoint presentation was retrieved from on the Web (May 2008) at http://www.soy2020.ca/ pdfs/ IgnaceDebruyne -presentation%20.pdf. Address: PhD, Ignace Debruyne & Associates VOF, Haverhuisstraat 28, B-8870 Izegem (Belgium). Phone: +32 51 31 12 74; Mobile: +32 476 46 07 98; Fax +32 51 31 56 75. E-mail: ignace.debruyne@advalvas.be.

3015. Dorff, Erik. 2007. The soybean, agriculture's jack-of-all-trades, is gaining ground across Canada (Web article). http://www.statcan.gc.ca/pub/96-325-x/2007000/article/ 10369-eng.pdf. 14 p. Oct. 26. Printed 28 Jan. 2010. [7 ref]

• ***Summary:*** An outstanding overview and description of the current status of soybeans in Canada.

Contents: Introduction. Development of the soybean sector in Canada. Growth in soybean area across the country. The soybean–an international super-crop. Soybean dollars make sense to farmers. One crop, many uses. Food for human consumption. Animal feed. Industrial products. Soybean not a "has-bean" crop in Canada. The gift of the bean (a brief early history of the soybean in the USA and Canada).

Figures: (1) Gains in soybean area reflect crop development efforts (1951-2006; 000 hectares). (2) One crop many uses. Diagram showing uses as: Food for human consumption, animal feed, industrial products. (3) Bred in Canada: soybeans of prominence. AC Proteus, Toki (for tofu), Nattawa (for natto), Maple Arrow (expanded soybean range out of southern Ontario), Maple Presto (the fastest maturing soybean). (4) Traditional soy foods: a brief guide (with a description of each). Edamame, miso, natto, soy sauce, soy milk, tempeh, tofu.

Tables: (1) Census of agriculture tracks growth in soybean area. Gives the area planted in Canada, Prince Edward Island, Nova Scotia, New Brunswick, Quebec,

| | 2006 | 2001 | 1996 | 1991 | 1986 | 1981 | 1976 |
|---|---|---|---|---|---|---|---|
| | hectares | | | | | | |
| Canada | 1,202,098 | 1,082,547 | 876,901 | 598,454 | 387,156 | 282,914 | 153,793 |
| Newfoundland and Labrador | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Prince Edward Island | 4,580 | 2,813 | 2,255 | 2,378 | 1,911 | 42 | 0 |
| Nova Scotia | 958 | 772 | 502 | 185 | 300 | 78 | 17 |
| New Brunswick | 762 | 328 | 566 | 18 | 50 | 21 | 4 |
| Quebec | 178,161 | 148,070 | 96,693 | 25,271 | 4,395 | 1,439 | 240 |
| Ontario | 872,455 | 909,922 | 776,209 | 570,228 | 380,298 | 278,853 | 152,910 |
| Manitoba | 141,869 | 20,249 | 237 | 50 | 139 | 2,299 | 309 |
| Saskatchewan | 2,229 | 359 | x | 0 | 0 | 69 | 183 |
| Alberta | 1,083 | 36 | 429 | 323 | x | 110 | 127 |
| British Columbia | 0 | 0 | x | 2 | x | 2 | 4 |

**Symbols**
x suppressed to meet the confidentiality requirements of the *Statistics Act*
0 true zero or a value rounded to zero

Source: Statistics Canada, Census of Agriculture, 1976 to 2006.

Ontario, Manitoba, Saskatchewan, and Alberta in the census years of 1976, 1981, 1986, 1991, 1996, 2001, and 2006. Soybeans were planted in each of these provinces in the three most recent census years. (2) Top 10 soybean producing nations (Average 2000 to 2005): After the USA, Brazil, and Argentina, China is 4th, India 5th, Paraguay 6th, Canada 7th, Bolivia 8th, Indonesia 9th. and Italy 10th. (3) Average soybean composition. Columns: Characteristic, oil, feed and meal beans, soy milk / tofu soybeans. For the latter: 100 seeds should weigh more than 20 gm. Colour very light with clear hilum, oil content 17-19%, protein content 44-47%, soluble sugar content 11-13%, insoluble sugar content 21-25%, minerals 5%. (4) Nutritional comparisons: Tofu and soy milk with ground beef and cow's milk.

Maps: (1) Soybeans in Canada (3 maps on one page). Map A shows that quite a bit of Quebec's soybean acreage lies south of the Saint Lawrence River, in the region named "Southern Quebec" (which includes the Eastern Townships at its southernmost area–its south-western end).

"Until the mid-1970s, soybeans were restricted by climate primarily to southern Ontario. Intensive breeding programs have since opened up more widespread growing possibilities across Canada for this incredibly versatile crop: The 1.2 million hectares of soybeans reported on the Census of Agriculture in 2006 marked a near eightfold increase in area since 1976, the year the ground-breaking varieties that perform well in Canada's shorter growing season were introduced" (p. 1).

"For years, soybeans were being grown in Canada but it wasn't until the Second World War that Statistics Canada began to collect data showing the significance of the soybean crop, with 4,400 hectares being reported in 1941. In fact, one year later the area had jumped nearly fourfold, to 17,000 hectares. In 1943 a program aimed at actively breeding soybeans suitable for southern Ontario was initiated.

"During the Second World War, North American manufacturers used oil from soybeans not only as a food but also to produce a wide number of industrial products including glycerine for the manufacture of nitroglycerine used for explosives and ammunition.

"By 1951, 62,967 hectares had been planted with soybeans (Figure 1), but they were still mostly confined to southern Ontario, the region with the longest and warmest growing season in Canada" (p. 2).

"It wasn't until varieties with earlier maturity and improved tolerance of cooler climates were successfully developed–the 'Maple' series of soybean cultivars–that significant soybean production was pushed beyond southern Ontario. The 1976 release of the Maple Arrow variety in particular is credited with expanding the range of soybean production into eastern Ontario (Table 1)."

The "growth between 2001 and 2006 was particularly notable in the Prairie provinces, with Manitoba's soybean area increasing sevenfold to over 141,869 hectares and its more western neighbours, Saskatchewan and Alberta, beginning to actively pursue soybean production. These gains in area were the payoff from research aimed at finding and breeding soybean varieties suited to the Prairies as well as from crop promotion and market development" (p. 5).

"In the 2006 calendar year, farm cash receipts from soybeans amounted to $680 million in Canada, making it the fifth most valuable field crop, trailing canola ($2.5 billion), wheat ($1.8 billion excluding durum), potatoes ($899 million) and corn ($753 million). In Ontario, where it was also the most planted crop, it was the top crop in terms of farm cash receipts, at $547 million, eclipsing the receipts from corn ($449 million) and wheat ($275 million)" (p. 6).

"International trade contributed to the value of soybean receipts. Preliminary figures place soybean exports at over 40% (1.5 million tonnes) of the soybeans grown in Canada in the 2006 crop year (3.5 million tonnes).

"Of the four top buyers in 2006, Japan led the list, importing $138 million in Canadian soybeans, followed by Malaysia ($52 million), the Netherlands ($49 million) and Iran ($43 million). At the same time, Canada imported about 302,000 tonnes of soybeans valued at approximately $81 million, 99% of which came from the United States" (p. 7). Address: Statistics Canada.

3016. Dorff, Erik. 2007. The soybean, agriculture's jack-of-all-trades, is gaining ground across Canada (Web article). http://www.statcan.gc.ca/pub/96-325-x/2007000/article/10369-eng.pdf. 14 p. Oct. 26. Printed 28 Jan. 2010. [7 ref]
• ***Summary:*** An outstanding overview and description of the current status of soybeans in Canada.

Contents: Introduction. Development of the soybean sector in Canada. Growth in soybean area across the country. The soybean–an international super-crop. Soybean dollars make sense to farmers. One crop, many uses. Food for human consumption. Animal feed. Industrial products. Soybean not a "has-bean" crop in Canada. The gift of the bean (a brief early history of the soybean in the USA and Canada).

Figures: (1) Gains in soybean area reflect crop development efforts (1951-2006; 000 hectares). (2) One crop many uses. Diagram showing uses as: Food for human consumption, animal feed, industrial products. (3) Bred in Canada: soybeans of prominence. AC Proteus, Toki (for tofu), Nattawa (for natto), Maple Arrow (expanded soybean range out of southern Ontario), Maple Presto (the fastest maturing soybean). (4) Traditional soy foods: a brief guide (with a description of each). Edamame, miso, natto, soy sauce, soy milk, tempeh, tofu.

Tables: (1) Census of agriculture tracks growth in soybean area. Gives the area planted in Canada, Prince

Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, and Alberta in the census years of 1976, 1981, 1986, 1991, 1996, 2001, and 2006. Soybeans were planted in each of these provinces in the three most recent census years. (2) Top 10 soybean producing nations (Average 2000 to 2005): After the USA, Brazil, and Argentina, China is 4th, India 5th, Paraguay 6th, Canada 7th, Bolivia 8th, Indonesia 9th. and Italy 10th. (3) Average soybean composition. Columns: Characteristic, oil, feed and meal beans, soy milk / tofu soybeans. For the latter: 100 seeds should weigh more than 20 gm. Colour very light with clear hilum, oil content 17-19%, protein content 44-47%, soluble sugar content 11-13%, insoluble sugar content 21-25%, minerals 5%. (4) Nutritional comparisons: Tofu and soy milk with ground beef and cow's milk.

Maps: (1) Soybeans in Canada (3 maps on one page). Map A shows that quite a bit of Quebec's soybean acreage lies south of the Saint Lawrence River, in the region named "Southern Quebec" (which includes the Eastern Townships at its southernmost area–its south-western end).

"Until the mid-1970s, soybeans were restricted by climate primarily to southern Ontario. Intensive breeding programs have since opened up more widespread growing possibilities across Canada for this incredibly versatile crop: The 1.2 million hectares of soybeans reported on the Census of Agriculture in 2006 marked a near eightfold increase in area since 1976, the year the ground-breaking varieties that perform well in Canada's shorter growing season were introduced" (p. 1).

"For years, soybeans were being grown in Canada but it wasn't until the Second World War that Statistics Canada began to collect data showing the significance of the soybean crop, with 4,400 hectares being reported in 1941. In fact, one year later the area had jumped nearly fourfold, to 17,000 hectares. In 1943 a program aimed at actively breeding soybeans suitable for southern Ontario was initiated.

"During the Second World War, North American manufacturers used oil from soybeans not only as a food but also to produce a wide number of industrial products including glycerine for the manufacture of nitroglycerine used for explosives and ammunition.

"By 1951, 62,967 hectares had been planted with soybeans (Figure 1), but they were still mostly confined to southern Ontario, the region with the longest and warmest growing season in Canada" (p. 2).

"It wasn't until varieties with earlier maturity and improved tolerance of cooler climates were successfully developed–the 'Maple' series of soybean cultivars–that significant soybean production was pushed beyond southern Ontario. The 1976 release of the Maple Arrow variety in particular is credited with expanding the range of soybean production into eastern Ontario (Table 1)."

The "growth between 2001 and 2006 was particularly notable in the Prairie provinces, with Manitoba's soybean area increasing sevenfold to over 141,869 hectares and its more western neighbours, Saskatchewan and Alberta, beginning to actively pursue soybean production. These gains in area were the payoff from research aimed at finding and breeding soybean varieties suited to the Prairies as well as from crop promotion and market development" (p. 5).

"In the 2006 calendar year, farm cash receipts from soybeans amounted to $680 million in Canada, making it the fifth most valuable field crop, trailing canola ($2.5 billion), wheat ($1.8 billion excluding durum), potatoes ($899 million) and corn ($753 million). In Ontario, where it was also the most planted crop, it was the top crop in terms of farm cash receipts, at $547 million, eclipsing the receipts from corn ($449 million) and wheat ($275 million)" (p. 6).

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"Of the four top buyers in 2006, Japan led the list, importing $138 million in Canadian soybeans, followed by Malaysia ($52 million), the Netherlands ($49 million) and Iran ($43 million). At the same time, Canada imported about 302,000 tonnes of soybeans valued at approximately $81 million, 99% of which came from the United States" (p. 7). Address: Statistics Canada.

3017. **Product Name:** It's All Good [2 Veggie Chick'n Breasts in a Tomato Tuscan Marinade, 2 Veggie Chick'n Breasts in a Herb Dijon Marinade, 2 Veggie Chick'n Breasts Lightly Seasoned, 8 Veggie Chick'n Filets in a Mediterranean Herb and Spice Rub, 8 Veggie Chick'n Filets in a Zesty Lemon Herb Rub, Veggie Chick'n Strips Lightly Seasoned, Veggie Beef Strips Lightly Seasoned, 6 Veggie Chick'n Satays in a Chili Lime Marinade, 5 Veggie Beef Skewers in a Chipotle BBQ Sauce].
**Manufacturer's Name:** Garden Protein International Inc.
**Manufacturer's Address:** 12751 Bathgate Way, Richmond (near Vancouver), BC V6V 1Y5, Canada. Phone: 604-278-7300.
**Date of Introduction:** 2007. October.
**Ingredients:** Veggie Chick'n Breasts: Water, isolated soy protein, vital wheat gluten, natural flavors, modified vegetable gum, potato starch, expeller pressed canola oil, tomato paste, spices, red bell pepper flakes, pea protein, carrot fiber, organic beet root fiber, organic evaporated cane juice, yeast extract, vinegar, sea salt, and citric acid. Contains Soy and Wheat.
**Wt/Vol., Packaging, Price:** 10.5 oz (300 gm). Paperboard box.
**How Stored:** Refrigerated.
**New Product–Documentation:** Packages sent by Yves Potvin of GPI. 2008. Oct. 28. Paperboard box. 6½ by 6½ by

1¼ inches. Green, red and black on white. A color photo on the front panel shows a Chick'n Breast sliced in half on a bowl of rice. On the front and back panels is the logo of Garden Protein International Inc. "Made with Gardein. Garden grown protein." On one side panel: "No artificial flavors, colors or preservatives. A good source of protein. Grain and vegetable ingredients. Suitable for vegans. Low fat. Manufactured for Its All Good Foods, Inc., Richmond, V6V 1Y5 Canada. www.itsallgoodfoods.com. Product of Canada, copyright 2007." On the other side panel: "Pan fry. Bake. Microwave. Barbecue, Good with rice, potatoes, couscous, pasta." On the bottom panel: "Heat & serve: Ready in 2 minutes." On the back panel are Nutrition Facts, ingredients list and recipe ideas.

3018. **Product Name:** FreeNut Butter (Soynut Butter).
**Manufacturer's Name:** Hilton Soy Foods.
**Manufacturer's Address:** Staffa, Ontario, Canada. Phone: 734-973-0778.
**Date of Introduction:** 2007. October.
**Ingredients:** Non-GMO toasted soy, soy oil, granulated cane sugar, monoglyceride (from vegetable oil), sea salt.
**Wt/Vol., Packaging, Price:** Plastic jar.
**How Stored:** Store in a cool, dry, dark place.
**New Product–Documentation:** Letter (e-mail) from David Singsank, Hilton Soy Foods, 2863 Quail Hollow Ct., Ann Arbor, Michigan 48108. 2009. March 28. FreeNut Butter is a private label by a small Canadian customer. It is in only a small number of smaller Canadian retail stores, mostly natural food stores. It will stay in Canada. It was introduced about last half of 2007. It retails for about US$4.75.

3019. *Ontario Soybean Growers Soybean Report.*2007. Message from OSG general manager [Dale Petrie]: Open letter to Ontario soybean growers. Aug. p. 1.
• ***Summary:*** "It is with pleasure that I write this letter as the new General Manager for the Ontario Soybean Growers. I look forward to working with all Soybean Growers, Board Members, Industry, Government and staff in this very dynamic and important crop sector.

"I was born and raised on a dairy / cash crop farm in the heart of Glengarry county in the very eastern corner of the province but have resided in Chatham-Kent for the last 25 years. My brother and father continue to grow corn and soybeans and represent the 4th the 5th generation of Petrie's on the family farm. My background has been primarily in the seed industry and I have had the privilege of visiting many farm operations from one end of the province to the other. I look forward to renewing these friendships and acquaintances at the upcoming regional meetings in early 2008.

"In the few short weeks that I have been with OSG, I have been very impressed with the talented, dedicated and hard working members of the OSG Board of Directors and the staff. They are all truly focused on ensuring we continue to look for exciting opportunities such as new export food grade markets, biodiesel, and other new industrial uses for Ontario soybeans.

"I look forward to joining OSG's efforts directed at both levels of government to address much-needed support mechanisms for producers, and to grow the soybean value chain–with special emphasis on flowing benefits back to producers.

"As you are aware there are a number of changes afoot with respect to the grain grower organizations in the province and I assure you I will do my utmost to ensure decisions that are made, are in the best interest of growers and for the overall good of the agricultural industry."

A portrait photo shows Dale Petrie. Address: Guelph, ONT, Canada.

3020. Mok, Denise. 2007. Business is all good for Yves: Entrepreneur serves up what people want–a meat-free, low-fat line of foods. *Business, South Shore (Vancouver, BC).* Nov. p. 3.
• ***Summary:*** A photo shows Yves Potvin standing by a produce case.

3021. Ontario Soybean Growers. 2007. Ontario Soybean Growers willing to resume MOU [memorandum of understanding] negotiations (News release). Guelph, Ontario, Canada: OSG. 1 p. Dec. 19.
• ***Summary:*** "Guelph, Ontario–Over 10 soybean producers attended the Ontario Soybean Growers (OSG) Committee Members meeting today in London, Ontario where they expressed their views on the recent OSG Board of Directors decision to withdraw from the MOU process. Multiple resolutions were brought forward from several districts across Ontario requesting the Board of Directors to continue resuming negotiations with Ontario Corn Producer's Association (OCPA) and the Ontario Wheat Producers' Marketing Board (OWOMB).

"Following the Committee Members the OSG Board of Directors met where a unanimous decision was made to resume MOU negotiations by meeting with the executives and general managers of OCPA and OWPMB."

Leo Guilbeault, Chair, OSG, said the meeting was a very positive one and the growers "presented a very balanced point of view of what the amalgamated organization could look like."

"OSG's recently developed strategic plan was presented at the meeting and was received with positive feedback from growers. The strategic plan complements OSG's mission statement that focuses on grower opportunities and value-added initiatives.

For further information:
Leo Guilbeault, Chair, OSG, 519-796-2289.
Dale Petrie, General Manager, OSG, 519-767-1744.

Note: This story also appeared in the Jan. 2008 issue of *Ontario Soybean Growers Soybean Report* (p. 1). Address: Ontario AgriCentre, Suite 201, 100 Stone Rd. W., Guelph, Ontario CANADA, N1G 5L3.

3022. Anderson, Fiona. 2007. Meatless meat wins animal rights award: Veggie-based chicken and beef look-alikes are created by Richmond's Garden Protein. *Vancouver Sun (British Columbia, Canada).* Dec. 26.
• ***Summary:*** PETA (People for the Ethical Treatment of Animals) has awarded its Proggy award for the "Company of the year" to Garden Protein International Inc. of Richmond, BC, Canada. makers of Gardein meatless protein.

3023. *SoyaScan Notes.*2007. Chronology of major soy-related events and trends during 2007 (Overview). Dec. 31. Compiled by William Shurtleff of Soyinfo Center.
• ***Summary:*** Feb.–The Soy Connection for the Food Industry (Vol. 1, No. 1) starts to be published by United Soybean Board as an free e-newsletter. The subject of the first issue is Qualisoy soy oil.

March 6–8 International Soy Utilization conference in Bangkok, Thailand. It is organized by: The Institute of Nutrition, Mahidol University (INMU), ASA International Marketing (ASA IM), and the Soy Food Forum Southeast Asia (SFF).

April 4–Organizations listed in the Soya & Oilseed Bluebook are invited and enabled to update their own listings online. The update listing will appear as soon as the Bluebook editors review it and in the print edition in the fall. The Bluebook will continue to be printed as a bound book. Preferred customers will receive a free copy. Qualified people or organizations in the industry who request a copy pay shipping and handling. Those outside the industry must pay for shipping and handling plus a $95 fee.

June 11–The Hain Celestial Group completes its acquisition of the tofu and meat-alternatives business of WhiteWave Foods Co., a subsidiary of Dean Foods. The product line includes grilled and baked tofu, seitan, tempeh, etc. These products are expected to complement Hain Celestial's existing meat alternatives under the Yves brand in Canada and the United States. The White Wave tofu business generated sales of approximately $8 million in the last financial year.

July 11–Solae announces that it has completed its purchase of Cargill's Prolisse line of isolated soy proteins (ISP; soy protein isolates), including the patented membrane technology for processing ISP.

Aug. 16–CPM (Waterloo, Iowa) acquires Crown Iron Works (Minneapolis, Minnesota). CPM is owned by Golbert Global, a private equity group. The acquisition doubles the size of CPM.

Aug. 7–SunOpta (incl. SunRich), headquartered in Canada, announces that it has acquired a soymilk plant in Heuvelton, New York, from ProSoya Corporation (Ottawa, Ontario). Allan Routh is president of the SunOpta Grains and Foods Group.

Sept. 11–Hain Celestial Group announces it will delay filing its annual report with the U.S. Securities and Exchange Commission (SEC) pending a review of its practices in granting stock options. Thus, the annual report was received by shareholders in April 2008, rather than the typical Nov. 2007.

3024. *Ontario Soybean Growers Soybean Report.*2007. Soybean rust in Ontario. Dec. p. 1.
• ***Summary:*** "Asian Soybean Rust infection was recently detected and confirmed for the first time in Canada. The disease was found on a soybean plant collected in October 2007 from a field in Ridgetown, Ontario by OMAFRA and confirmed through molecular tests by Agriculture Canada in Ottawa.

"This confirmation, along with the first detection of soybean rust spores this past summer in Ontario (from rainfall and air samples) illustrates that the disease can spread through wind-borne spores into Ontario from US infected areas.

"Soybean rust, common throughout Asia and South America, was discovered in the fall of 2004 in the U.S. The fungus is not harmful to humans or animals but it can have a crippling effect on soybean plants and yields. The impact on yield depends on when infection occurs. The earlier the disease starts in the summer the greater chance of a yield impact. Soybean rust can be managed with early detection and the use of fungicides.

"At present all Ontario commercial soybean varieties are susceptible to the soybean rust, but public breeders at the University of Guelph and Agriculture Canada in conjunction with OMAFRA and the Ontario Soybean Growers are working to build soybean rust resistance into future Ontario varieties. Screening of Ontario breeding lines was done this summer in Florida and demonstrated that our breeders are on the right track. Some lines are showing resistance, but it will take time to incorporate this into commercial varieties.

"What does this mean for Ontario soybean farmers? This is the first time soybean rust has infected Canadian soybeans. However, it arrived late enough in the growing season that it is unlikely to have affected 2007 soybean yields.

"But what about 2008? Researchers can't predict how the disease will act in Canada's climate, but we do not expect this disease to over winter in Ontario. Soybean rust requires a living host plant to survive, reproduce and over-winter. It is unlikely that a winter host exists in Ontario or the northern US.

"As a result, the risk of soybean rust infecting Ontario soybeans during the next growing season will depend on spring and summer weather systems that move air into Ontario from the southern US. It will be critical to monitor the spread of soybean rust northward during the 2008 season in order to ensure early detection, should it arrive in Ontario again. Likely the largest factor in our risk for 2008 will be the type of winter in the southern US. A mild winter will cause less frost kill and more overwintering of soybean rust. This will increase the amount of rust available to move North early in the season.

"To monitor soybean rust developments in Ontario and in the US, OSG supports Ontario's participation in the most comprehensive disease monitoring and forecasting program in North America, often referred to as the Sentinel plot network. This is coordinated by the US Department of Agriculture, United Soybean Board and the North Central Soybean Research Program.

"Funding for many of the Ontario soybean rust projects was provided in part through the Canada-Ontario Research and Development or CORD Program administered by the Agricultural Adaptation Council as well as Ag Canada's Pest Management Centre, the Ontario Soybean Growers and the Ontario Soybean Rust Coalition (through the CanAdvance Program)." Address: Guelph, ONT, Canada.

3025. PETA [People for the Ethical Treatment of Animals]. 2007. 5th annual PETA proggy awards for progress–Garden Protein International: Company of the year.
• ***Summary:*** This color award, 8½ by 11 inches, shows a frog leaping from left to right and is signed by Ingrid E. Newkirk, President. The PETA proggy awards are presented at the end of each year in late December. This one was awarded in late 2007.

Note: Founded in 1980 and based in Norfolk, Virginia, PETA is a nonprofit, tax exempt corporation. PETA's slogan is "animals are not ours to eat, wear, experiment on, or use for entertainment." The organisation focuses on four core issues: factory farming, fur farming, animal testing, and animals in entertainment. It also campaigns against fishing, the killing of animals regarded as pests, abuse of chained, backyard dogs, cock fighting, bullfighting and the consumption of meat. (Source: Wikipedia, Oct. 2008).

3026. Fouillet, Gérard. 2007. Le tofu santé. 2nd ed. Outremont, Quebec: Quebecor. 153 p. 23 cm. Series: Collection Santé naturelle. *

3027. Smith, Jeffrey M. 2007. Genetic roulette: The documented health risks of genetically engineered foods. Fairfield, Iowa: Yes! Books. v + 319 p. Index. 29 x 23 cm. [1131 endnotes]
• ***Summary:*** Contents: Praise for Genetic Roulette (4 p.). Foreword by Michael Meacher, MP. Acknowledgments. Introduction: Deceptions, assumptions, and denial– Exposing the roots of genetically modified crops: Industry is in charge of safety, genetic engineering creates widespread, unpredictable changes, how genetic engineering works and why it is not an extension of natural breeding, GM crops–two traits in four crops by five companies in six countries, GM is not like natural breeding, how to make a GM crop (two primary methods of gene insertion involve using a specific bacterium or a gene gun), its difficult to identify health problems from GM foods, even if widespread. What is presented in this book. Terms and concepts used throughout this book ("The terms genetically modified (GM) and genetically engineered (GE) are used interchangeably"). Organizational abbreviations.

Part 1. The documented health risks of genetically engineered foods. 1.1 Evidence of reactions in animals and humans (p. 40-59): 1.10 Mice fed Roundup Ready soy had liver cell problems. 1.11 Mice fed Roundup Ready soy had problems with the pancreas. 1.12 Mice fed Roundup Ready soy had unexplained changes in testicular cells. 1.13 Roundup Ready soy changed cell metabolism in rabbit organs. 1.14 Most offspring of rats fed Roundup Ready soy died within three weeks. 1.15 Soy allergies skyrocketed in the UK, soon after GM soy was introduced [in 1999]. 1.19. Eyewitness reports: Animals avoid GMOs.

1.2 Gene insertion disrupts DNA: 1.2.9 Roundup Ready soybeans produced unintentional RNA variations. Differences in nutritional composition of Roundup Ready soybeans (p. 86-87). 1.3 The protein produced by the inserted gene may create problems: 1.3.2 GM proteins in soy, corn and papaya may be allergens (p. 92-93). 1.4 The foreign protein may be different than what is intended. 1.5 Transfer of genes to gut bacteria, internal organs, or viruses: 1.5.4 Transgenic transfer to human gut bacteria is confirmed (p. 130-31). 1.6 GM crops may increase environmental toxins and bioaccumulate toxins in the food chain: 1.6.2 Herbicide-tolerant crops increase herbicide use and residues in food (p. 146-47). 1.6.4 GM crops may accumulate environmental toxins or concentrate toxins in milk and meat of GM-fed animals (p. 150-51).

1.7 Other types of GM foods carry risks. 1.8 Risks are greater for children and newborns. Connecting the dots: looking for patterns and causes.

Introduction to Parts 2 and 3. 2. The regulation of GM foods is inadequate to protect public health. 3. Industry studies are not competent to identify most of the unpredicted side effects: Research must be stopped when companies refuse to provide GM seeds (p. 196). Compositional changes are obscured by pooling crop data from varied growing conditions or making comparisons with plants of diverse genetics (p. 218-19).

4. Flaws in the arguments used to justify GM crops: Why GM crops are not needed to feed the world. Golden rice is the wrong way to supplement vitamin A. Conclusion.

Appendixes: 1. Gathering data and staying up to date on the risks of GM foods 2. How to avoid eating genetically modified foods. 3. List of GM crops. 4. Food enzymes from genetically modified organisms. 5. Special alert on aspartame, a genetically engineered sweetener. 6. Institute for Responsible Technology. 7. Credentials of those cited often in the text. About the author.

Monsanto, a major manufacturer of PCBs (polychlorinated biphenyls), systematically denied and covered up their known dangers to humans and animals. A court fined Monsanto $700 million (p. 5).

The five major "ag biotech" companies are Monsanto (the largest), DuPont, Syngenta, Bayer CropScience, and Dow. These five companies control 35% of the worldwide seed market and 59% of the world pesticide market. The four major genetically engineered [GE] food crops in commercial production are soybeans, corn, canola, and cotton. There are also GE zucchini, crookneck squash, papaya, and alfalfa. GE tomatoes and potatoes were introduced commercially but taken off the market. Quest cigarettes contain GE tobacco (p. 7).

Although Ag biotech promotes GE as a way of feeding the world's hungry, growing crops in the desert, or boosting nutritional value, the single dominant trait is herbicide tolerance (HT). The second popular GE trait is a built-in pesticide, Bt. Six countries grow nearly all commercialized GE crops: The USA (54%), Argentina (18%), Brazil (11%), Canada (6%), India (4%), and China (3%).

Note: Jeffrey Smith grew up in New York and graduated from college at SUNY Binghamton in 1981. He also has an MBA degree. Address: Fairfield, Iowa.

3028. SunOpta Inc. 2007. Annual report 2006: Sustainable growth. Brampton, Ontario, Canada. 114 p.
• ***Summary:*** SunOpta describes itself as "A healthy products company." On page 1 are financial highlights from 2001 to 2006. All dollar amounts are in U.S. dollars. Much of SunOpta's growth has come from acquisition. Revenues increased from $93.362 million in 2001 to $598.026 million in 2006. This is a 6.5-fold increased in 6 years.

Gross profit increased from $12.722 million in 2001 to $101.784 million in 2006. This is a 8.4-fold increased in 6 years.

Gross profits as a percentage of revenues ranged from a low of 13.8% in 2001, to a high of 19.1% in 2004, to 17.0% in 2006–all very high percentages.

Net earnings (profit or loss) increased from a loss of $231,000 in 2001 to a record profit of $13.558 million in 2005, decreasing to $10.959 million in 2006–with earnings per share of $0.19. Note: The company does not issue dividends and has no plans to in the future. Its stock is sold on both the Nasdaq and Toronto stock exchanges. Address: 2838 Bovaird Drive West, Brampton, Ontario L7A 0H2, Canada.

3029. AGP–A Cooperative. 2008. Annual report to members: Your cooperative. 12700 West Dodge Road, P.O. Box 2047, Omaha, Nebraska 68103-2047. 32 + 21 p. 28 cm.
• ***Summary:*** Net sales for 2007 (year ended Aug. 31) were $2,685.065 million, up 13.8% from $2,360.484 million in 2006. Earnings from continuing operations (before income taxes): $90.296 million, up 20.2% from $75.136 million in 2006.

Records achieved (p. 3): Soybean crush. Aminoplus production and sales. Growth in Vistive contract areas. Refined vegetable oil production. Renewable fuels production. Earnings by Protinal / Proagro in Venezuela.

Capital investments (p. 3): Soybean processing upgrade and expansion under construction at St. Joseph, Missouri. Methyl ester plant expansion at Sergeant Bluff, Iowa. New methyl ester plant at St. Joseph, Missouri. Masterfeeds expansion and upgrade of Daco premix and testing plant.

Message to the stockholders, from Marty Reagan (CEO and General Manager) and Brad Davis (Chairman of the Board). "All AGP businesses were profitable, and each contributed to the excellent financial performance. As a result, AGP will pay patronage funds of $46.2 million, of which the Board approved 30 percent to be paid in cash to members.

"The excellent cash flow generated from these strong earnings combined with your cooperative's ongoing balance sheet strength allowed your Board of Directors to approve equity redemption of $28 million for $2007. This amount brings the three year total of equity redeemed to $84 million. Cash payments for 2007 totaled $45.2 million including current cash patronage, equity redemption, and value-based premium programs. These payments bring the three-year total of cash returned to members to over $123 million–the most cash returned in any three-year period in AGP's history" (p. 5).

AGP is "the largest cooperative soybean processing company in the world." It "processes more than 15,000 acres of soybeans every day." "Today its owners are 195 local cooperatives and six regional cooperatives, representing 250,000 farmers from 15 states throughout the United States and Canada" (p. 7).

"Vistive soybeans, developed by Monsanto Company through conventional breeding, contain 3% linolenic acid, compared to the typical 8% found in traditional soybeans. The result is a more stable, low-linolenic (low-lin) soybean oil which, for certain applications, does not need the partial hydrogenation process that produces trans fatty acids (trans fats).

"Labeling of trans fats content in food became mandatory in Jan. 2006, so in partnership with Monsanto, AGP began contracting acres for Vistive production in 2005. Since then, growth of Vistive contract acres through AGP's membership has been outstanding. From 2006 to

2007, acres increased almost five-fold, and the number of participating members that offer local delivery of Vistive more than doubled.

"AGP expanded processing of Vistive soybeans from two to six plants,..." "AGP has been a leader in identity preserved soybeans for many years." Contains many color photos. Address: Omaha, Nebraska. Phone: (402) 496-7809.

3030. **Product Name:** President's Choice Blue Menu–The World's Best [Meatless Chicken Breast, Meatless Chicken Strips].
**Manufacturer's Name:** Garden Protein International Inc.
**Manufacturer's Address:** 12751 Bathgate Way, Richmond (near Vancouver), BC V6V 1Y5, Canada. Phone: 604-278-7300.
**Date of Introduction:** 2008. January.
**Ingredients:** Chicken breast: Water, soy protein isolate, wheat gluten, natural flavour, methyl cellulose, potato starch, canola oil, spices (contain garlic), vitamins and minerals [name of each is given], pea protein, carrot powder, beet root powder, cane juice powder, yeast extract, salt.
**Wt/Vol., Packaging, Price:** 900 to 936 gm. Paperboard box.
**How Stored:** Refrigerated.
**New Product–Documentation:** Packages sent by Yves Potvin of GPI. 2008. Oct. 28. The Chicken Breast was first sold in Jan. 2008 and the Breaded Chicken Strips in June 2008. Paperboard box. 9.5 by 7.5 by 2.5 inches. Light green, bark blue, light blue, red and black on light blue. "Loblaws Inc.," Montreal, Toronto, and Calgary. A color photo on the front panel shows the Chicken Breast and the Breaded Chicken Strips (one of each is sliced) with veggies on a white plate.

On the back panel are Nutrition Facts, ingredients list and recipe ideas. On the lower back panel is the logo of the manufacturer, Garden Protein International Inc. (in English and French) on a light blue background: "Made with Gardein. Garden grown protein. www.gardein.com. Gardein is a registered trademark of Garden Protein International Inc."

3031. *Ontario Soybean Growers Soybean Report.*2008. RMP checques arrive in time for the holidays. Jan. p. 1.
• ***Summary:*** "Members of Ontario Grains & Oilseeds would like to thank Agricorp and the Ontario Ministry of Agriculture, Food and Rural Affairs for its quick response on implementing the Risk Management Program (RMP) for Ontario grain & oilseed producers. Many producers have received RMP payments for the '07 crop year before the Christmas season. This payment is greatly appreciated by Ontario farm families at this time of year." Address: Guelph, ONT, Canada.

3032. *Ontario Soybean Growers Soybean Report.*2008. RMP update from Agricorp. Jan. p. 1.
• ***Summary:*** "Over $40 million in Ontario Risk Management Program (RMP) income support continues to make its way to eligible grain and oilseed producers across Ontario. Agricorp, the delivery agent for the Ontario government, expects to deliver the remaining balance of more than 10,000 pre-harvest price period payments to enrolled producers this month, and approximately 14,000 post-harvest price period RMP payments by the end of June 2008.

"'I am pleased that Agricorp partnered with industry to launch this new program and start making payments so quickly,' said Leo Guilbeault, Chair of the Ontario Grain and Oilseed Safety Net Committee.

"Launched by representatives from industry and the Ontario Federation of Agriculture in August 2007, RMP was designed to offset losses to grain and oilseed producers caused by low commodity prices. Most eligible commodities will trigger two payments for each crop year, typically in the fall and the spring if the market price falls below the support level. The three-year RMP pilot joins Production Insurance (PI) and the Canadian Agricultural Income Stabilization (CAIS) as one more component of an effective business risk management package. For that reason, producers who want to participate in RMP must also participate in both Production Insurance and the CAIS program." Address: Guelph, ONT, Canada.

3033. Shurtleff, William; Aoyagi, Akiko. 2008. Le livre du tofu: La source de protéines de l'avenir–dès maintenant! [The book of tofu: Protein source of the future–now! Translated from the English by Nathalie Tremblay]. Varennes, Quebec, Canada: Éditions AdA Inc. 430 p. Illust. by Akiko Aoyagi. Index. Feb. 28 cm. [53 ref. Fre]
• ***Summary:*** Contents: Preface. Acknowledgements. Part I. Tofu: Food for mankind. 1. Protein East and West. 2. Tofu as a food. 3. Getting started. Our favorite tofu recipes (lists about 80 recipe names for each of the different types of tofu, plus soymilk, yuba, whole soybeans, gô, okara, and curds; very favorites that are also quick and easy to prepare are preceded by an asterisk).

Part II. Cooking with tofu: Recipes from East and West (500 recipes). 4. Soybeans: History, cooking with whole dry soybeans, roasted soybeans *(iri-mame),* fresh green soybeans *(edamame),* kinako (roasted full-fat soy flour), soybean sprouts *(daizu no moyashi),* natto (sticky fermented whole soybeans, with "gossamer threads"), tempeh (fermented soybean cakes), Hamanatto and Daitokuji natto (raisin-like natto), modern western soybean foods (natural soy flour [full-fat], soy granules, defatted soy flour and grits, soy protein concentrates, soy protein isolates, spun protein fibers, textured vegetable protein (TVP), soy oil products). 5. Gô (a thick white puree of well-soaked

uncooked soybeans). 6. Okara or Unohana. 7. Curds and whey. 8. Tofu (includes history, and preparatory techniques: Parboiling, draining, pressing {towel and fridge method, slanting press method, sliced tofu method}, squeezing, scrambling, reshaping, crumbling, grinding).

9. Deep-fried tofu: Thick agé or nama agé, ganmo or ganmodoki (incl. *hiryozu / hirosu),* agé or aburagé (incl. "Smoked tofu," p. 197). 10. Soymilk. 11. Kinugoshi ("*Kinu* means 'silk'; *kosu* means 'to strain'; well named, kinugoshi tofu has a texture so smooth that it seems to have been strained through silk"). 12. Grilled tofu. 13. Frozen and dried-frozen tofu. 14. Yuba (incl. many meat alternatives such as Yuba mock broiled eels, Buddha's chicken, Buddha's ham, sausage). 15. Tofu and yuba in China, Taiwan, and Korea (incl. Savory tofu *{wu-hsiang kan};* see p. 258 for illustrations of many meat alternatives, incl. Buddha's fish, chicken, drumsticks, and duck, plus vegetarian liver and tripe, molded pig's head, and molded ham). 16. Special tofu.

Part III–Japanese farmhouse tofu: Making tofu for more and more people. 17. The quest. 18. Making community tofu. 19. The traditional craftsman. 20. Making tofu in the traditional way. Appendices: A. Tofu restaurants in Japan (many are vegetarian). B. Tofu shops in the West (Directory of 43 shops in the USA, 3 in Europe {Germany, Austria, Belgium, Denmark, Finland, France, Ireland, Italy, Netherlands, Portugal, Spain, Switzerland, UK, Wales}, and 3 in Latin America {Brazil, Colombia, El Salvador, Guatemala, Mexico}). C. People and institutions connected with tofu. D. Table of equivalents. Bibliography. Glossary. Index. About the authors (autobiographical sketches; a photo shows Shurtleff and Aoyagi, and gives their address as New-Age Foods Study Center, 278-28 Higashi Oizumi, Nerima-ku, Tokyo, Japan 177). Sending tofu in the four directions.

Pudding recipes include: Rice pudding with gô and apple (p. 76, incl. 2 cups soymilk). Tofu chawan-mushi (p. 147; Steamed egg-vegetable custard with tofu). Tofu fruit whips (p. 148). Tofu rice pudding (p. 150, incl. 1 cup soymilk). Tofu custard pudding (p. 152). Soymilk custard pudding (p. 208). Brown rice pudding (p. 208, with 2 cups soymilk). Soymilk chawan-mushi (p. 209). Chawan-mushi with yuba (p. 249).

Dessert recipes include: Tofu whipped cream or yogurt (p. 148; resembles a pudding or parfait). Tofu ice cream (p. 149, with chilled tofu, honey, vanilla extract and salt). Banana-tofu milkshake (p. 149). Tofu cream cheese dessert balls (p. 149). Tofu icing (for cake, p. 149). Tofu cheesecake (p. 150). Tofu-pineapple sherbet (p. 151). Also: Soymilk yogurt (cultured, p. 205). Healthy banana milkshake (p. 206). On p. 160 is a recipe for "Mock tuna salad with deep fried tofu." Address: Soyinfo Center, P.O. Box 234, Lafayette, California 94549 USA. Phone: 925-283-2991.

3034. Golbitz, Peter. 2008. Sale of Soyatech, major contributions, future plans. Part II (Interview). *SoyaScan Notes.* March 24. Conducted by William Shurtleff of Soyinfo Center.

• ***Summary:*** Continued: (1b) Soyatech's electronic newsletter is a way for the company to have a presence with its customers every day. The last printed, mailed issue of *Bluebook Update*, Soyatech's quarterly newsletter, appeared in Dec. 2003 (Vol. 10, No. 4). Thereafter the newsletter moved to an electronic online format and was renamed eNews Daily and Weekly.

(1c) Soyfoods conferences: Soyatech did a series of about ten of these jointly with IQPC and IBC. Peter was asked by the organizers to helped design the agenda, made sure the topics were relevant, and help promote the event (make mailing lists etc. available) to ensure satisfactory attendance. It was a contract for services agreement; Soyatech was paid a flat fee and/or a "piece of the gate" (percentage of income from attendance).

(1d) Market studies: These were a way for Soyatech to benchmark where the soy industry was in any particular year, and measure the value being added. For Soyatech it was a great way to promote the company's expertise in a particular area. Soyatech has done about 10 syndicated studies–7 soyfood reports, one on whole soybeans for food use and another on soy protein. They are currently in production with 2 more. (1e) Proprietary consulting: For one customer such as an equipment supplier, a technology provider, a seed supplier, a processor, a food company, etc. It crossed the whole value chain. People who wanted to understand what they had or what the size of the market was. Today Soyatech does 15-20 medium- to large-size projects a year. For example, in April 2006, the sixth report produced by a partnership of Soyatech and SPINS was released. Having a good staff is one key to doing all this.

Peter resigned as president of Soyatech on 17 Jan. 2008 and it became effective on March 7; his role is now "Founder and Senior Advisor." Peter is actively working with the company; he has three projects on which he is consulting with HighQuest Partners, helping to find and provide information. The Soyatech office in Bar Harbor, Maine, is fully staffed and more active than ever. Keri Hayes is now publisher of the Bluebook and Joe Jordan is general manager of content and events. So HighQuest has promoted the people at Soyatech rather than bringing HighQuest people into the Bar Harbor office. Peter believes that this is the best arrangement for both Soyatech and HighQuest. He is extremely happy with the way things have worked out, and he has a tremendous amount of respect for the vision that they had and for their respect for what Soyatech was and is. "They've done a great job. More than anything else, I am grateful." People from Boston come up regularly, and are working very effectively with the Soyatech staff. Soyatech has more of a horizontal /

egalitarian management chart than most companies. In short, the merger seems to be working out really well. Peter plans to meet Keri and Joe today to discuss upcoming events and Bluebook layout issues. Peter thinks that it is unlikely that HighQuest will shut down the Bar Harbor office and consolidate it into any of their other offices. The Boston office is also headquarters for a number of other businesses that HighQuest operates. HighQuest has five consultants in their Boston office.

(2) Peter's work with the Soyfoods Association of North America (SANA): When Peter left as president of Soyatech, he resigned his seat on the SANA board, because it is a company board seat. Although he could stay on because he is still an advisor to Soyatech, he decided to let Philippe de Lapérouse take the seat. Another reason for the decision to step down is that, during the past 4-5 months, Peter's work with the World Soy Foundation, has taken quite a bit of his time.

(3) Peter's work with WISHH (the World Initiative for Soy in Human Health). Peter became involved with WISHH in 2003 after Soyatech considering forming its own foundation; Peter realized that it made more sense to work with an established group. WISHH is now a committee of the American Soybean Association (ASA); it no longer has its own board. That is a recent change; for more information contact Jim Hershey, who is executive director of WISHH. Peter works with WISHH as a volunteer and ex officio member. He has been to Africa (South Africa, for 1 week each trip) 3 times so far, in 2005, 2006 and 2007. Soyatech helped to raise the $750,000 needed to establish the "Soy in Southern Africa Alliance"; Sarah Day from Soyatech's office just recently went to Ghana and Nigeria for WISHH as a researcher / consultant.

On the first several trips to South Africa, Peter met with companies to advise them on their soy sourcing, processing, marketing, and to generally help them solve their problems and improve their operations. On the most recent trip, when he visited the SoyaCow and SoyaGoat training center in KwaZulu-Natal, the easternmost province of South Africa, he helped them process soymilk using these two mechanical soymilk making machines, and gave several lectures on soymilk processing, flavorings, the types of technologies available, and to help develop that industry further. WISHH, whose objective is market development for foods and ingredients made from U.S. soybeans, is working to create fertile ground through education of the benefits of soy products in the human diet. The focus is on foods, but soy oil and meal are not excluded. WISHH is trying to get the SoyaGoats into communities such as orphanages, feeding kitchens, etc. and to train people to make soymilk using this technology. There are a number of large soymilk companies in South Africa; they generally sell soymilk in TetraPak cartons that is too expensive for most people. By using a SoyCow or VitaGoat the people drink fresh soymilk and omit the packaging, which is more than half of the cost. In 2007 Malnutrition Matters of Ottawa, Canada, (Frank Daller, president) got a grant from the World Bank to place about 16 VitaGoats in India; they hope to feed 4,000 to 5,000 children. Daller developed the VitaGoat using simple, inexpensive parts suited for Third World villages without electricity. "We're still just beginning in developing countries but there is a tremendous amount of interest." WISHH is also working with a Rotary group, and together they are sending SoyCows and soybeans, to Guatemala. In Peter's experience, the people in Africa loved the fresh soymilk made using relatively inexpensive technology. He found there was very little difference in the taste and appearance of the soymilk made by the low-tech bicycle-powered VitaCow and the electric high-tech cold-water-grind SoyaCow. "We just sent Sarah Day, research analyst in the Bar Harbor Office, to Nigeria and Ghana for a week in February." Two years ago Peter helped to raise $250,000 from industry for WISHH; WhiteWave and Solait were the two largest contributors. WISHH added $100,000, and that $350,000 was matched by USAID making a total of $700,000 for the South African project, which including establishing the center and running short courses in soymilk processing and teaching seminars.

A remarkable gentleman named Henry Davies (a white Afrikaner businessman) has set up this training center in Bergville, KwaZulu-Natal. It is dedicated to teaching and training people about soyfoods. There is a full SoyaCow in the tiled processing room, which is really a pilot plant. There is also a meeting and lecture room. There was an extrusion plant that made pet food and textured soy flour.

(4) Peter's work with the World Soy Foundation (WSF): In March 2007 Peter was elected to the board of directors of WSF; he is also chair of their fundraising committee. WISHH could not be a foundation or a nonprofit organization–such as 501(c)(3)–because part of its agenda was market development. So in late 2006 the Internal Revenue Service (IRS) gave ASA and USB permission to create the World Soy Foundation as a 501(c)(3) charitable foundation, which would disperse funds to various kinds of organizations related to U.S. soybeans. Presently WISHH is their primary beneficiary, but WSF can only give to certain types of WISHH projects. So WISHH is expected to get some of its funding through the American Soybean Association (ASA) and some through the World Soy Foundation. ASA, as well as the big state soybean boards such as Illinois, Iowa and Indiana, are all major contributors to WISHH. The board is comprised of soybean farmers, who provide great leadership, and each of whom sits on their state soybean board. Ellen Feeney from White Wave Foods and Peter have provided some soyfoods industry perspective. White Wave has been a great supporter of both WISHH and the World Soy Foundation.

Future plans: Peter is putting the finishing touches on a home office. He is thinking about some travel ideas, book ideas, and writing projects. He's trying to keep his time open. He cannot consult for the next few years with companies outside of Soyatech and HighQuest Partners–being restricted by a non-compete clause in his contract with HighQuest. Looking at the big picture, Peter says: "If there's some way I can do more for promotion of soy in the world–bring it on!"

Peter recently took a trip to visit Nasoya, Lightlife, and South River Miso Co. "It was wonderful. It was really nice to be welcomed with open arms into all those companies." Their original vision is still alive. So is his.

Peter remarried in 2004 to Mary Cline Golbitz, a lawyer, who has also become a certified yoga teacher. They have three sons; two are Peter's stepsons. Peter has two kids in college (one at Middlebury College in Vermont and one at Northeastern in Boston) and a third about to start college, so he can't afford to retire. He needs a source of income to pay for the kids in college. Peter lives on Mount Desert Island, which is several hundred yards off shore and is connected by one road to the mainland. It is the largest island off the coast of Maine (with a permanent population of about 10,000) and the 2nd largest (after Long Island) on the Eastern Seaboard of the USA. Bar Harbor is on the island. Half the island is occupied by Acadia National Park. Address: Founder and Senior Advisor, Soyatech, Bar Harbor, Maine. Phone: (503) 386-7766.

3035. *Globe & Mail (Toronto, ONT, Canada).*2008. Veggie innovator breaking new ground [Yves Potvin and Garden Protein International]. March 26. Eat Well, p. 2. Special information supplement.

• ***Summary:*** A photo show Yves Potvin shopping in a grocery store. In 1988, Mr. Potvin invented the meatless wiener.

Note: The first meatless wiener (named "Meatless Wiener") was introduced in 1944 by Battle Creek Food Co. in Michigan. By 1988 more than 115 different meatless wieners and sausages had been launched in the USA. The first tofu hot dog was "Weissman's Original Tofu Sausage," introduced in Nov. 1980 by the Vegetable Protein Co., Cambridge, Massachusetts. At least ten tofu hot dogs had been launched in the USA before 1988. These included: Tofu Links (Nov. 1981, by Soya Food Products, Cincinnati, Ohio). Light Links (July 1982, by Light Foods Inc., St. Louis, Missouri). Lightlife Meatless Tofu Pups (Sept. 1985, by Tempehworks, Greenfield, Massachusetts).

3036. Hain Celestial Group, Inc. (The). 2008. Annual report 2007. Melville, New York. 8 + 69 + 3 p. April. 28 cm.

• ***Summary:*** Net sales for the year ended 30 June 2007 were $900.4 million, up 21.9% from 2006. Net income in 2007 was $47.5 million, up 22.1% from 2006.

Acquisitions and divestitures: On 8 Dec. 2006 Hain acquired Haldane Foods Ltd., a UK-based producer of meat-free food and non-dairy beverage products, from the Archer Daniels Midland Co. (ADM). Haldane's brands include Realeat frozen foods, Granose, Direct Foods and Realeat dry mixes, and Granose non-dairy beverages. Price: About $10.1 million.

On 11 Jan. 2007 Hain acquired Avalon Organics, a leader in body care, for approximately $126.1 million in cash. This includes the brands Avalon Organics, Alba Botanica, and Alba Organics. On 7 Dec. 2007 Hain acquired Tender Care International, Inc., a marketer and distributor of chlorine-free and gel-free natural diapers and baby wipes under the Tender Care and Tushies brand names for $3.9 million in cash (see 2008 Annual Report, p. 37).

Most of the report is Form 10-K/A. A table of the company's common stock prices, as listed on the NASDAQ Global Select Market under the ticker symbol Hain, shows the highs for FY 2006 ranged from $20.59 to $27.94. The highs for FY 2008 ranged from $32.33 to a record high of $35.14.

Page F-2: "On June 15, 2007, we announced that the company had received an informal inquiry from the SEC [Security and Exchange Commission] concerning the company's stock option granting practices and the related accounting and disclosures." An independent investigation was conducted. The numerous problems found in the dating and documentation of stock options are discussed. For example: "Approximately one-third of all options granted were priced at quarterly or annual lows." "Some grant dates in earlier periods appear to have been selected in hindsight." Tables on page F-8 and F-9 show that the above problems resulted in $6.5 million of additional income taxes and a total loss to the company of $11.7 million. For example, net income for FY 2006, previously reported as $37.067 million, is now restated as $36.367 million, a decrease of about 1.9%.

Accompanying the annual report is a "Notice of Annual Meeting of Stockholders and Proxy Statement" (34 p.). Irwin Simon, the founder and CEO, age 49, had the following annual compensation: Salary: $1.25 million. Total compensation: $3.851 million. Address: 58 South Service Road, Melville, New York 11747-2342. Phone: 631-730-2200.

3037. Garden Protein International. 2008. Lifestyle (Website printout–part). http://www.gardenprotein.com. 7 p. Printed May 28.

• ***Summary:*** Tabs (across the top): Product info (Garden Beef or Garden Chicken). Product usage. Availability. Formats & flavors. Nutrient info. Contact us. "Gardein (TM)–the new vegetable protein. More than an ingredient, its a foundation." E-mail: wow@gardenprotein.com.

Talk with Seth Tibbot, founder and president of Turtle Island Foods, Inc. 2008. May 27. Yves Potvin has started a new company (after selling his original company to the Hain Celestial Group in June 2001) named Garden Protein International. He probably had to wait until his "noncompete agreement" had expired. He has worked with Solae and soy protein isolates to develop a new generation of extruded meat alternatives, with an excellent texture and flavor. Yves also has a second and newer website with the latest info on its products: www.gardein.com. Address: 12751 Bathgate Way, Vancouver (Richmond), BC, Canada V6V 1V5. Phone: 604-278-7300.

3038. Garden Protein International. 2008. Gardein–Garden Grown Protein (Website printout–part). http://www.gardein.com. 12 p. Printed May 28.

• ***Summary:*** This is Garden Protein International's new website–much more interesting than their previous www.gardenprotein.com. At the heart of the new website is a superb color video (6 minutes, 26 seconds) of Yves Potvin telling the story of his life and work.

Tabs (across the top): About Gardein (TM): What is Gardein?, our story (color video), our philosophy, how Gardein is made, news. Our products: Retail, food service, feature product. Healthy eating (Go flexitarian). Recipes: Veggie chick'n, Veggie beef. Partners. Contact us: Directions, employment.

Sayings that change about every 8 seconds at top of every page in the website: "Never take your ego too seriously. Learn something new everyday. Try something new everyday. Do something new everyday. Love your family. Eat your veggies. Be part of something bigger than you. Help people. Feed your body and your body will feed you. What comes around goes around–do unto others as you would like to have done unto you. Do something kind for another being. In your own way, make a contribution to making the world a better place. Today is more important than tomorrow. Be thankful. Embrace change. Step back and recharge your batteries. Success is always learning. If you have the ability to learn, you have the ability to grow." These same sayings are also found (written) at About Gardein > Our philosophy.

Most of the homepage is devoted to still color graphics that appear to move. Inside of a rectangle 8½ inches wide and 3¼ inches high, three color photos, side by side, fade in (from left to right) then fade out. The photos include: A young lady doing yoga, another sitting in the cross legged position facing away toward the sea, many photos of Gardein in prepared dishes, a little girl blowing a round white head of milkweed seeds, a field of wheat, a girl leaping down onto the sand. This set of 3 takes about 12 seconds, and then is replaced by three more After two sets of three photos the Gardein logo (green, red, and yellow) slowly moves into place, with the tagline "Garden grown protein" in black letters below it. The full cycle of 3 sets of 3 takes about 39 seconds.

The story of Yves life (told in the 2nd person): He was born in small town of Waterloo, Quebec, the fourth of a family of five. He enjoyed a typical French-Canadian childhood of hockey, school, and church. And from a very early age he loved independence. Following high school and a brief stint studying architectural design, he asked himself a true entrepreneurial question: "Is this really what I want to do for the rest of my life? The answer was very clear to me." So he left school, went traveling to South America, learned Spanish, and discovered the world. He returned a year later with a fresh perspective. He decided then to pursue his passion for food, so he enrolled in the school of culinary art. With his degree in hand, he started his first venture, a French nouvelle cuisine restaurant called *Le Bateleur* (the magician). Two years later with the restaurant successful, he woke up one extremely cold Quebec morning and thought, "Gosh, Vancouver sure looks good!" So he followed the old saying "Go West young man." But always being wont to do it differently, he thought, *Mais oui!* Why not bicycle across Canada. The journey was an adventure to discover just what he was made of. He didn't know then that his future would be in Vancouver, and it would be there that he would find his spot in life. When he arrived in Vancouver he noticed that people were interested in health, fitness, and nutrition–just like him. But there was no healthy, convenient food in the marketplace. So he thought, "Why not create a healthy fast food," and *voila!* He was 28 years old and full of energy when he started Yves Fine Foods in Quebec. With $5,000 from his own pocket, $10,000 from family, and $25,000 from a small business loan. "It was very much a one-man operation: Me, myself, and I." He worked seven days a week manufacturing, packaging, marketing, selling, and distributing. His first product was a Veggie Dog. Initial production: 17 cases. Unfortunately, another 19 cases went to waste–not a great beginning. "I've always said, its okay to make a mistake, but in order to stay in business, learn and don't repeat them." The company started to take off and over the next 13 years it experienced an average growth of 50% per year. In that time we built a state of the art, 60,000 square foot facility and increased our distribution across 7,000 supermarkets in North America, Europe, and Asia. Their product line had grown to include 20 different items. Along the way, the company was fortunate to receive many national and international awards for entrepreneurship, export excellence, and product innovation. By the spring of 2001 the meatless market had changed drastically. Multinationals were buying up private companies left and right. In life, timing is everything. So Yves decided to sell to the Hain Celestial Group, a publicly traded company on the Nasdaq. It was time to recharge his batteries. Over the next year he spent quality time with his young family and

traveled the world. The time off allowed him to reflect on the challenge our society is facing. Fast food epidemic, factory farming, and major population growth were placing our environment at risk. It was then that he decided to pursue an idea that he had long ago–to develop an ingredient made entirely of vegetable and grain sources, but which had the same taste and texture of premium lean meat or fish. So in 2003 he founded Garden Protein International. For the next two years he spent a great deal of money and time creating this new protein that was named Gardein (pronounced gar-DEEN)–a mixture of the words "garden" and "protein." Today GPI is a rapidly growing, award winning company, selling across North America, the UK, and Japan. Their strategy has three pillars: Private label, foodservice, and their own retail brand–all made with their proprietary ingredient Gardein. So why is he not at the beach enjoying life or playing golf every day. "Well, to be honest, the main reason is that I love what I do. I think this is the right food at the right time. In my own way, I can make a small contribution to make this world a better place. *Pourquois pas?* [Why not?]. And you know–I'm not the only one that believes in the potential of our vegetable resources. Take it from someone a bit smarter than me." There follows a color photo of Albert Einstein with a quotation by him in support of vegetarianism. Address: 12751 Bathgate Way, Vancouver (Richmond), BC, Canada V6V 1V5. Phone: 604-278-7300.

3039. SunOpta Inc. 2008. SunOpta (Website printout–part). http://www.sunopta.com. Printed June 21.
• ***Summary:*** Contents: Home page. About us: Company history. Operating groups. Investor relations. News & events. Site map. Contact us [USA and Canada].

Company history: "SunOpta was founded in 1973 under the name 'Stake Technology' to commercialize its proprietary steam explosion technology. These efforts continue today within SunOpta BioProcess Inc. "The acquisition of Barnes Environmental in 1995 led to the creation of Opta Minerals Inc., a vertically integrated player in the industrial mineral and environmental recycling markets. The company has grown steadily since that time, and in February 2005 completed an initial public offering, listing its common shares on the Toronto Stock Exchange. SunOpta currently owns 66.7% of the common shares of Opta Minerals Inc.

"The SunOpta Food Group was created in 1999 and through combination of internal growth and acquisitions has grown to become a North American leader in sourcing, organic, processing and distribution of natural and organic food products integrated from seed through packaged products.

"Through this evolution a strong and vibrant organization has emerged with a strong commitment to natural, organic and specialty foods and environmental responsibility.

"From less than $200,000 revenues in 1994, the Company has grown to expected revenues of $740–$760 million in 2007.

On this page is an excellent timeline of almost 30 key events in the SunOpta Food Group's history–starting on 3 Aug. 1999 with the acquisition of Sunrich, Inc., based in Hope, Minnesota.

Also at About us > Company policies, is a statement of SunOpta's "Environmental philosophy and principals." And at About us > Chairman's message is a statement from Jeremy N. Kendall.

SunOpta stock price: During most of 2007 until about Nov. 2007 the stock sold for $12-14 a share. From Nov. 2007 until about Aug. 2008 it averaged $6. In Oct. 2008 it reached an all-time low of about $1.15 with the world economy downturn. But by 29 Jan. 2009 it had climbed back to $2.42. Address: 3824 SW 93rd St., Hope, Minnesota 56046; Headquarters: 2838 Bovaird Drive West, Brampton, Ontario, Canada. Phone: 507-451-4724.

3040. **Product Name:** Eating Right [Lightly Seasoned Veggie Chicken Breasts, Lightly Seasoned Veggie Chicken Strips, Lightly Seasoned Veggie Veggie Beef Strips, Veggie Chicken Breast in Tomato Basil Sauce].
**Manufacturer's Name:** Garden Protein International Inc.
**Manufacturer's Address:** 12751 Bathgate Way, Richmond (near Vancouver), BC V6V 1Y5, Canada. Phone: 604-278-7300.
**Date of Introduction:** 2008. June.
**Ingredients:** Chicken breasts: Water, soy protein, wheat protein, natural flavors, modified cellulose, potato starch, canola oil, spices, pea protein, carrot, organic beet root fibre, organic evaporated cane juice, yeast extract, sea salt + vitamins and minerals.
**Wt/Vol., Packaging, Price:** 200 to 300 gm.
**How Stored:** Refrigerated.
**New Product–Documentation:** Packages sent by Yves Potvin of GPI. 2008. Oct. 28. Paperboard box. 5 by 6.5 by 1.5 inches. Green, blue, red, black and yellow on white. "Prepared for Lucerne Foods, Calgary, Alberta T2P 2J6, Canada." On the back panel are Nutrition Facts, ingredients list and recipe ideas. On the lower back panel is the logo of the manufacturer, Garden Protein International Inc. (in English and French) on a light green background: "Made with Gardein. Garden grown protein. www.gardein.com. Gardein is a registered trademark of Garden Protein International Inc."

3041. **Product Name:** Tesco Meat Free: 2 Chicken-style fillets.
**Manufacturer's Name:** Tesco Stores Ltd. (Retailer).
**Manufacturer's Address:** Chestnut EN8 9SL, UK.

**Date of Introduction:** 2008. June.
**Ingredients:** Rehydrated soy protein (33%), rehydrated wheat protein (33%), natural flavouring, stabiliser (methyl cellulose), red pepper flakes, yeast extract, beetroot fibre, onion powder, spices (black pepper), parsley, garlic powder, salt, cane sugar, vegetable oil, potato starch, white sugar, wheat flour, sage, pea protein, carrot fibre, white pepper, celery seed, smoke flavouring, pepper extract, sage extract.
**Wt/Vol., Packaging, Price:** 200 gm. Paperboard box.
**How Stored:** Refrigerated.
**New Product–Documentation:** Packages sent by Yves Potvin of GPI. 2008. Oct. 28. Paperboard box. 6 by 5.75 by 1.25 inches. Pea green, orange, and black on white. "Produced in the U.K. for Tesco Stores Ltd., Chestnut, UK. On one side panel is the logo of Garden Protein International Inc. (Richmond, BC, Canada): "Made with Gardein. Farm grown protein." A color photo on the front panel shows a Chicken Fillet sliced open, surrounded by veggies on a white plate. On the front panel: "A lightly seasoned blend of soya and wheat gluten, dusted with herbs. Low in saturates. A good source of fibre. No artificial preservatives, flavours or colours. A round logo says "Super Foods." On the back panel are Nutrition Facts, ingredients list and recipe ideas. Note: Tesco is a leading supermarket chain in the UK.

3042. **Product Name:** Trader Joe's Chicken-Less Strips, Beef-Less Strips.
**Manufacturer's Name:** Trader Joe's (Marketer-Distributor).
**Manufacturer's Address:** Monrovia, CA 91016.
**Date of Introduction:** 2008. June.
**Ingredients:** Chicken-less: Water, isolated soy protein, vital wheat gluten, natural flavors, expeller pressed canola oil, organic evaporated cane juice [sugar], spices, yeast extract, sea salt, garlic powder, onion powder, red bell pepper flakes, parsley flakes, pea protein, carrot fiber, sunflower oil.
**Wt/Vol., Packaging, Price:** 8 oz (227 gm) in plastic bag. Retails for $2.99 at Trader Joe's (2008/07, Lafayette, California).
**How Stored:** Refrigerated.
**Nutrition:** Chicken-less: Per 76 gm. (about 9 strips): Calories 110, calories from fat 15, total fat 1.5 gm (2% daily value; saturated fat 0 gm), cholesterol 0 mg, sodium 330 mg (14%), total carbohydrate 3 gm (dietary fiber 1 gm [4%], sugars 1 gm), protein 20 gm (40%). Vitamin A 6%, calcium 4%, vitamin C 2%, iron 35%. Percent daily values are based on a 2,000 calorie diet.
**New Product–Documentation:** Product (Chicken-less) with Label purchased at Trader Joe's in Lafayette, California. 2008. July 6. Paperboard box is 5 by 6½ by 1½ inches deep. Light blue, light green, white and black. Large color photo of product with fried vegetables on front panel. Front panel text: "Heat & serve. Ready in 2 minutes. Lightly seasoned." Heart healthy logo and Vegan logo. On back panel are nutrition facts and ingredients. For best flavor, saute on stove for 2-3 minutes. Soyfoods Center taste test. 2008. July 7-8. Good flavor, appearance, and label design; excellent texture. This extruded product contains too much protein for our taste if eaten by itself, but is nice if used as an ingredient. Note: The main ingredient is Gardein, made by Garden Protein International (GPI) (Richmond, BC, Canada). However, neither Gardein nor GPI are mentioned on the product. Two packages sent by Yves Potvin of GPI. 2008. Oct. 28.

3043. *Ontario Soybean Growers' Update.*2008. OSG supports SOBIN Ridgetown biodiesel facility. July. p. 1.
• ***Summary:*** "On June 20th, the Southwestern Ontario Bioproducts Innovation Network (SOBIN) and the University of Guelph's Ridgetown Campus announced federal funding of almost $1 million for the establishment of an on-campus farm-scale biodiesel demonstration, education and applied research facility.

"Ontario Soybean Growers' support of the project was recognized at the launch event, held at the Ridgetown Campus. "OSG's commitment of $10,000 toward the quality testing laboratory for the Ridgetown biodiesel facility underlines our members' support for clean, renewable energy research", notes Dale Petrie, OSG General Manager. A main objective of the project is to demonstrate to farmers how they can be engaged in the renewable energy sector, by making it easier for them to successfully produce fuel from their farms, and add value to the by-products.

"Funding for the facility comes through Agriculture and Agri-Food Canada's Advancing Canadian Agriculture and Agri-Food Program, delivered in Ontario by the Agricultural Adaptation Council. SOBIN, a not-for-profit organization, works primarily within the agriculture, automotive, chemical and energy industries to encourage increased bio-based enterprise."

Note that the title of this 1-page monthly e-mail report has changed slightly. Address: Guelph, ONT, Canada.

3044. Martin, Dennis. 2008. Re: How Dennis, The Farm in Tennessee, and Plenty went to Guatemala after the 1976 earthquake and hooked up with CIDA (the Canadian International Development Agency). Early history of Plenty's work with soyfoods in Guatemala. Letter (e-mail) to William Shurtleff at Soyinfo Center, Aug. 4. 1 p. Followed by interview on Oct. 31.
• ***Summary:*** "On 4 Feb. 1976 a huge earthquake, magnitude 7.5, struck Guatemala, eventually killing more than 22,700 people. I was working in Mobile, Alabama, at the time, as a satellite of The Farm (Summertown, Tennessee). I had a ham radio and listened to it every night studying for my

ham license. I heard about the earthquake, and immediately contacted The Farm. Shortly thereafter, myself and two other guys, Melvyn Stiriss and Peter Gray, went down to Guatemala with $150 and 150 lb of carpenter's tools. Plenty had recently been established at The Farm as a relief organization and this was their first work outside the United States.

"We attended a meeting sponsored by Guatemala's newly-formed National Reconstruction Committee overseen by the president of Guatemala. The president asked that each NGO [non-governmental organization] adopt a village or town that suited their budget and take responsibility for helping the people there. Plenty had made a commitment to us of $15,000 which Plenty would raise. But we soon found that the only available wood for building was in sawmills, which had no supply. Then we heard that the Canadian government was sending an emergency boatload of lumber from Canada. I went to the Canadian Embassy to ask if we could buy some wood. The Canadian Chargé d'Affaires, Clive A. Carruthers (the top Canadian Embassy man in Guatemala), had control of about $7 million of aid funds after the earthquake. Clive had hired Rick for a dollar year to oversee the NGOs who were to work with the Mayans, and to keep out those whose main goal was really trying to build churches and / or convert Mayans to other religions. Plenty arrived with a sympathetic and interested attitude toward the indigenous people and a history of working with such people in the United States. I had long hair and beads on my jacket.

"Clive first tested my knowledge of basic carpentry. When I answered his first tough question correctly, he welcomed me and said that if we would work with the Canadian relief effort, they would give us any supplies we needed. My agreement with them was that we would feed and clothe ourselves if they would help us maintain livable quarters and provide all the building materials and equipment we needed.

"I helped them to design a pre-fab building and to establish a pre-fabrication shop to produce these inexpensive buildings in the town of San Andreas Itzapa, municipality of Chimaltenango, where over 1,600 houses were built in 5 months. Then some monks arrived from Canada and largely took over the factory.

"I had planned to stay in Guatemala for about 1½ months since I had a wife and kids at home. After 6 weeks in Guatemala, Clive offered to fly down my wife and youngest child; the other two kids stayed with a family at The Farm in Tennessee.

"The Plenty connection in Guatemala really rests with two key players who were not part of Plenty: Clive Carruthers, Chargé d'Affairs for the Canadian Embassy in Guatemala, with a background in geology and a minor in archaeology, and Richard Bronson, who had a PhD in archaeology, who taught this subject at the UC Santa Cruz campus and who also worked for years with National Geographic in Turkey, Liberia and sites of the ancient Etruscans outside of Rome. They opened the doors to the Mayan world to us. Clive and Rick became friends prior to the 1976 earthquake when Rick was poking around some of the ancient Mayan sites. On the weekends, they would venture up to the highlands and throw bones with the local shamans, visit traditional Mayan villages etc. On one occasion they happened upon an ancient dance ("The dance of the conquistadores"–the Spanish conquerors) and ten-festival, sponsored by a local Mayan, who must have been fairly affluent to pay for 10 days of food at 10 different locations. In this case that person was named Estevan Chu, the former Mayan mayor of the Cakchiquel Nation and broker of corn for the local farmers who feared traveling to Guatemala City to sell their produce and risk being cheated or robbed. The dance involved very lavish costumes and recounted the dramatic story of the battle in 1524 between Pedro Alvarado, a Spaniard and lieutenant of Cortez, who came to Guatemala in the early 1500's, and Tecun Uman, a leader of the Mayans. The Spaniards defeated the Mayans, and founded old Antigua, which became the hub of all Spanish missionary activity in the New World. During this extraordinary ten-day event, rarely attended by outsiders, Clive and Rick became friends with Estevan Chu.

"Clive and Rick felt the dusty, dirty city was unhealthy for my child, so they told us of their favorite places in the highlands, home of very traditional Mayans, great weavers, etc. at an elevation of about 9,000 feet. Rick and Clive knew people in these villages, and they helped us to get established. First we worked in Chimachoy, then in neighboring Chicasanga, where we built 2-3 schools. About half way through this period of school building Clive and Rick, in person, introduced us to Estevan Chu; we got to know him well while building a school in his canton of El Tablon. We ended up building (not rebuilding) 11 new schools in the first 13 months. We had an agreement with the Canadian government that if we built the schools they would put teachers in them.

"I soon realized we needed more carpenters, so I phoned The Farm and asked for skilled carpenters who were willing to work hard without any pay. They sent me a small group of Farm members who were truly "angels." The Canadian embassy paid their air fare." Continued. Address: Founder and President, Carpenters without Borders (Carpenteros Sin Fronteras).

3045. Martin, Dennis. 2008. Re: How Dennis, The Farm in Tennessee, and Plenty went to Guatemala after the 1976 earthquake and hooked up with CIDA (the Canadian International Development Agency). Early history of Plenty's work with soyfoods in Guatemala. Part II. Letter (e-mail) to William Shurtleff at Soyinfo Center, Aug. 4. 1 p. Followed by interview on Oct. 31.

• ***Summary:*** Continued: "After we had built 5-6 schools in Chimaltenango (and about 2 years after we arrived), Clive and Rick asked us to go to Solola, the traditional capital and highland market center of the Cakchiquel [Kaqchikel in modern orthography] Nation of Mayas, on a mountainside some 600 meters (about 2,000 feet) above Lake Atitlan, where they had connections with traditional Mayas. By now a deep bond of love and respect had grown up between Plenty and Clive and Rick; I told them I thought that the Mayas truly have a superior worldview. They appreciated that attitude.

"We learned that a problem, which was important to Clyde and Rick among others, had arisen in Solola. The Mayan municipality building, which had long been located in the central square at Solola, was a one-story adobe structured that had been badly damaged by the earthquakes. The Guatemalan government was pressuring the Mayas to re-locate the building to an area four blocks from the center of town, saying that they did not have the resources to rebuild and the town would be better served if the state of Solola could build its own (Spanish) municipality on that site.

"There are only two Mayan municipality seats left in Guatemala; one in Solola (the capital city of the Solola department) and the other in Chichicastenango (in the El Quiché department of Guatemala).

"At this point, Clive and Rick intervened, and said that the Canadian Government would provide materials and funds to rebuild the Indian Municipality building on the same location. Plenty was asked to participate in this project.

The Mayan municipality was both nonsecular (selected) and secular (elected). The nonsecular part were the *cofradias,* who were Mayan elders and spiritual leaders with stature in the 5-6 Mayan communities (cantons). The secular tribal representatives had little or nothing to do with the *cofradias*. The secular people (including the *acalde* or mayor) went to work in the Mayan building every day; the spiritual leaders would come only on special occasions.

"We learned that extra money was needed to rebuild the Indian Municipality building. Clyde arranged for me to fly to Ontario, Canada, with Estevan Chu, the former Cakchiquel mayor of the Indian Municipality (he wore his traditional Mayan clothing–*traje*–and sandals). We made a presentation and proposal to CIDA (the Canadian International Development Agency, which is part of the Canadian government) to rebuild the Indian Municipality building and four other buildings in other towns in the highlands. This was my first contact with CIDA. We stayed at the Canadian Farm with Larry McDermott and Norman and Sarah Ayerst. CIDA said that they would send us money if they could send it through an NGO in Canada. The Canadian Farm applied for and was accepted to be that NGO. Now we were hooked up with CIDA and the funds soon started to flow to us in Guatemala.

As soon as the money from CIDA arrived, our crew went to work on the projects we had proposed to CIDA, starting with the Indian Municipality building. We ended up lived in the home / compound of the current Mayan mayor at that time. While completing the municipality building, we (Plenty) developed friendships and connections with the local Mayas–which eventually led to Plenty building the soy dairy.

"We also installed a radio station in the Mayan Municipality building. We brought Estevan's son, Jose, to The Farm in Tennessee, and he learned how to run a radio station, then returned to Guatemala to run the one we had installed.

"Then we moved to San Bartolo (about 1 mile away, on the outskirts of Solola), where we built a water system. It was in San Bartolo that the soy dairy was later established and its building constructed–just as I was leaving Guatemala.

"By the time we reached Solola, we had established a base. Stephen Gaskin had come down and seen that what we really needed was first response medical capability, so he sent a paramedic and a midwife and a bunch of ladies to watch the kids. Eventually, on my watch, we increased our volunteer base in the camp from three carpenters to over 80 volunteers with specialties in midwifery, paramedics, radio telecommunications for health promoters in remote villages, and soybean cultivation and variety testing (Daryl Jordan). The midwives and others were soon working closely with their local counterparts and they became very close to one another. Then they got to know families. We took in 5-6 street children from Guatemala City and elsewhere, who were orphaned or alone after the earthquake. Many of these stayed for while at The Farm in Tennessee.

We also built schools in the surrounding villages and the water system I mentioned for a canton of Solola called San Bartolo, which adjoins the town. We also lived there in an encampment of tents with an old cracked wall villa which no one would sleep in because of the constant earth tremors. During that stay, a lot of the local folks would come over and of course we would invite them for meals; at this time there began an introduction of soyfoods into the Mayan world. One thing led to another and we met the most wonderful couple, Augustine and Elena Xoqic, who were both from the village of San Bartolo and both Cakchiquel Maya. (Later Elena's photo would grace the front cover of *Mother Earth News).* They became the Mayan heart of the soy diary, which they have managed and worked for the last 30 plus years. The first 15 years, before the Guatemalan Civil War (when we left), the soy dairy ran very smoothly.

"I worked in Guatemala for about 3 to 3½ years; I think the longest anyone else was there was 14 months.

"The details of the development into a working soy diary is best left to Suzi, Laurie, Jorge and company as I left after three years of rough living with my wife and three young children, just as the blocks were being laid for the diary, which I just visited about two months ago. It is a very popular spot for the neighborhood as the soy cones [soft-serve soymilk ice cream cones] are absolutely delicious."

Afterword: In early 1984 I returned to Guatemala on my own, alone, and I snuck up to Solola to see if I could find the Chu family. It was very dangerous and Rick told me not to go, but I really loved those people. I wanted to talk to some of the villagers to find out where they were. I learned that in 1981, during the Civil War, about 18 months after Plenty had left Guatemala, Estevan and about half his family, including Jose and his other son, were dragged out of their houses and executed. The Guatemalan government went to the Mayan municipality building and ripped out the radio station. Most Mayans tried to stay neutral during the Civil War; they just wanted to be left alone. Rick (who is American and Canadian) also returned several times over the years. Rick is the co-founder of Carpenters without Borders; Dennis now lives on Rick's ranch in Napa, California. Address: Founder and President, Carpenters without Borders (Carpenteros Sin Fronteras).

3046. Yoshihara, Susan-Marie ["Lulu"]; Yoshihara, Yasuo ["Yoshi"]. 2008. Re: History of Shin-Mei-Do Miso Company. Letter to William Shurtleff at Soyinfo Center, Aug. 12. 3 p. Typed, with signature.

• ***Summary:*** "Dear Bill, In 1977 I met you and Akiko in Tokyo. Our miso making journey began a year before when I found "The Book of Miso" in Uwajima-ya department store in Seattle. Your book, "The Book of Tofu," was already my favourite cookbook and I was looking forward to new culinary adventures. It may sound trite but what I found in the "The Book of Miso" literally changed my life.

"Inside the book was not only a wealth of miso lore and recipes, complete and detailed instructions for making miso at home and on a commercial scale were there in the back of the book, too. With this information I knew that our family could set up our own miso business.

"In 1976 we had just moved to rural Denman Island but still had no idea of how we would make our living. My husband, Yoshi, was from a Japanese farm family and he remembered how his family had made miso at home every fall. But he was only a child then and knew only some of the details involved. Nevertheless, we were interested and in the fall of 1977, accompanied by our 4 year old son, I went to Japan.

"Thanks to an amazing bit of luck I received an introduction to Yaeko Nakata, sister of the president of Maruman Miso Company in Nagano prefecture. Ms. Nakata was in charge of the hand-made division of the company. She and miso maker Chisato Kobayashi allowed me to observe and participate in the koji making process. Because I was able to experience the making of koji, so crucial to the making of good miso, I felt that Yoshi and I would be able to succeed in miso making.

Note: Susan-Marie arrived in Japan in Oct. 1977 and was there until the end of February 1978–about 5 months. Thus, she was the first Caucasian and the first Westerner to travel to Japan with the specific goal of making miso commercially in the North America or Europe. She got very little support from anyone in the beginning. The trip was funded in part by money she had earned from planting trees for two weeks on Vancouver Island. "Most folks in Japan and Canada probably thought I was out of my mind to try to make miso in Canada." Yet without her struggle and her hands-on experience, the miso business in Canada could never have existed. On this trip she was accompanied by the now famous Japanese photographer, Mr. Ryuji Miyamoto.

"With very little capital but with youth and enthusiasm on our side we started work. It was 1979 and we had a 5 year old and a new baby boy. We made our first few batches in a woodshed. Our beans and grains were steamed in ½ whiskey barrels over a wood fire in a maple syrup cooker that we found in an antiques store. The upper part of our 10 acre property had been clear-cut some years before we bought it, so Yoshi used the logging slash to stoke the fires.

"That summer we built a new building. About once a month Yoshi drove our little red Datsun pickup truck to Vancouver where he bought sea salt and organically grown rice and soybeans. He also bought large oak barrels from Sweeney Cooperage in Vancouver. Two of the barrels could just squeeze into the back of the pickup and the bags of salt and grains and soybeans fit inside the barrels.

"We had no machines–no grinder, no mixer. Using a ½ barrel and a special pair of clean new gum boots, Yoshi and I took turns smashing cooked soybeans while the other poured in the salted koji and turned the miso-to-be with an extra large rice paddle that Yoshi carved from Douglas fir. Often one of us was carrying the baby on our back. Our elder son played in the shop while we worked. Over about 3 years we made 22 tons of miso that way.

"Did I tell you that Yoshi's first carpentry project ever was to build the koji incubation room in the woodshed? Our neighbours made the koji boxes from red alder wood and those boxes are still in good condition, nearly 30 years later.

"It is amazing what you can do when you are young, healthy, idealistic and ignorant! Even so, we realized soon enough that we'd have to have mechanical help to make a living. In 1982 we built an addition to the building and added 8 large wooden tanks from Arrow Tank Company of Buffalo, New York. By that time Sweeney Cooperage had already been torn down for Expo 86 in Vancouver. We also imported a miso mixing machine from Japan and bought a used grinder. A neighbour helped us set up a low pressure steam boiler by adapting a wood-fired house furnace. Used

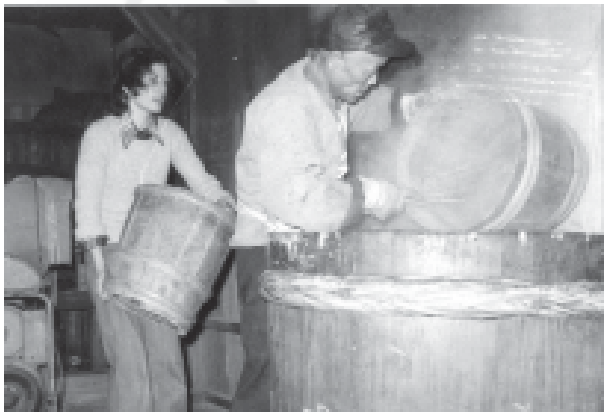
stainless steel steam kettles completed the production equipment.

"Every summer Yoshi bucked, split and stacked firewood for the boiler. He made an extra long wooden spoon to harvest the finished miso from the large tanks. He packed the miso by hand no matter how hot or cold the weather was. Only the koji incubation room was heated, yet even in mid-winter Yoshi stood there at the packaging table for hours in the freezing cold. Yoshi is very strong and fit.

"In September of 2006 Yoshi broke his collarbone in a bicycle accident. It never healed properly. In the meantime the cost of doing business had gone up incredibly. Ferry fares to the islands more than doubled. In 2008 we decided to retire and shut down our business after producing 220 tons of miso in nearly 30 years of business.

"If you would like to know more about how we made miso please don't hesitate to contact us. We are enclosing newspaper articles, 9 photographs and captions that explain them. Please keep these copies as we have backup copies of them. "Sincerely,..."

Photos (mostly black and white) accompanying this letter show: (1) Susan-Marie learning koji making at Maruman Miso in Iida, City, Nagano prefecture, Japan. Feb. 1978. Photo by Mori Akiko of Sankei Shinbun.



(2) Susan-Marie helping Mr. Chisato Kobayashi carry grain to the steamer. Same date, place, and photographer as No. 1.

(3) Susan-Marie crushing cooked soybeans underfoot to make miso, 1979, Denman Island, at Shin-Mei-Do Miso Co. Photo by Yasuo Yoshihara.

(4) Steaming soybeans using an old cast-iron, wood-fired, maple-syrup boiler, April 1979. Photo by Yasuo.

(5) Yasuo and baby Tomoe by the steamer, April 1970. Photo by Susan-Marie.

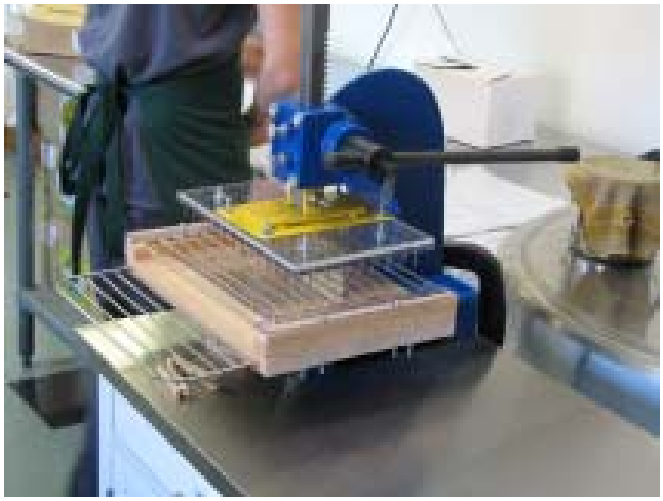
(6) Yasue and Susan-Marie in the new miso shop, on their same property, 1983, Denman Island.

(7) The new miso shop and new equipment, 1983.

(8) Miso license plate, 1984, Denman Island.

(9) Yasuo and Susan-Marie with Arrow Tanks, 1986, Denman Island (color). Address: Shin-Mei-Do Miso Co., 3906 Wren Rd., Denman Island, BC, Canada, V0R 1T0. Phone: 250-335-0253.

3047. Brown, Allan; Brown, Susan. 2008. Re: Photographs of improved technology for making tempeh at McDonalds Corners, Ontario, Canada. Letter (e-mail) to William Shurtleff at Soyinfo Center, Aug. 21-22. 2 p.
• ***Summary:*** Each of these two color digital photos is accompanied by a caption or explanation. They are:



(1) Improved bag puncher. In the western world, many companies incubate their tempeh in perforated plastic bags. This bag puncher, designed and built by John Drozdowski, Allan's equipment engineer, was first used in Sept. 2007. Allan says: "The holes we punch in our bags are much bigger than the industry standard." He thinks every tempeh maker in North America "gets their bags or rolls in tube stock punched with really small perforations from the same supplier." That size of hole did not give us the growth and quality of tempeh we are used to."

(2) Improved soybean dehuller. Allan writes: Here is a picture of a dehuller we designed from that article you sent to us from *Soyfoods magazine* [Fiering, Steve. 1981. "Low technology soybean dehuller." *Soyfoods.* Winter. p. 52]. Wow! This knocks 2/3 of our time off of our old system of dehulling. Plus very little clean up and virtually no dust in the air. Note dust collector sucks the hulls out of the falling split beans from the grinder and into the lower bag. Upper bag is for air release. We now can do this inside our shop instead on the cold, cold porch. Address: Founders, Noble Bean, R.R. #1, McDonalds Corners, ON K0G 1M0 Canada. Phone: 613-278-2305.

3048. *Ontario Soybean Growers' Update.*2008. Thoughts from the OSG chair [Leo Guilbeault]. Aug. p. 1.
• ***Summary:*** "It's been busy here at OSG. New staff members are fitting in well, new Directors are taking active roles in the organization and as you'll see by the following, the whole association has been working hard on behalf of our growers. In this OSG Update, you'll find information on the Grower Requested Own Use (GROU) Program that allows farmers to economize by importing U.S. versions of Canadian registered crop protection products for their own use; Farm Input Price Monitoring done by Ridgetown College; the 2008 Canadian Soybean Harvest Survey, and OSG's 2008 Soybean Yield Challenge.

"The OSG Board has been busy dealing not only with the GROU program, but also with research projects, and of course the ongoing Memorandum of Understanding (MOU) process. Keep an eye out for more information on the MOU in the next few weeks; things are finally coming together.

"Results of OSG's strategic plan, unveiled last winter, are beginning to take shape. We have quite a few projects and proposals on the go that will have a positive impact on maximizing value for the whole Ontario soybean industry. To learn more on this topic, be sure to visit the OSG–Soy 20/20 Innovation booth at Canada's Outdoor Farm Show, September 9, 10, 11, 2008. We will be located in the Grow Guelph tent, on the North Mall between 2nd and 3rd Lane, along with the University of Guelph and other agri-food innovation partners." A portrait photo shows Leo Guilbeault. Address: Guelph, ONT, Canada.

3049. **Product Name:** Cassington's [2 beef-style peppered steaks, 2 chicken style fillets in a tomato & herb marinade].
**Manufacturer's Name:** Cassington's Food Co. (Retailer).
**Manufacturer's Address:** Dale House, Leeming Bar, Northallerton, North Yorkshire DL7 9UL. Phone: 0800 84 4776.
**Date of Introduction:** 2008. September.
**Ingredients:** Peppered steaks: Rehydrated wheat protein (43%), rehydrated soya protein (31%), peppercorn marinade (12%) [contains water, sugar, vinegar, garlic puree, onion, bell peppers, salt, yeast extract, corn flour, black pepper, pink peppercorns, thickening agent, pectin], natural flavourings, stabiliser (methyl cellulose), potato starch, barley malt extract, onion powder, cane sugar, pea protein, carrot fibre.
**Wt/Vol., Packaging, Price:** 200 gm. Paperboard box.
**How Stored:** Frozen.

**New Product–Documentation:** Packages sent by Yves Potvin of GPI. 2008. Oct. 28. Paperboard box. 5.75 by 5.75 by 1.125 inches. For peppered steaks: Golden brown, red, yellow, black, and light blue on white. On the upper front panel is the logo of Garden Protein International Inc. (Richmond, BC, Canada): "Made with Gardein. Farm grown protein." A color photo on the front panel shows a Peppered Steak surrounded by lettuce and veggies on a white plate. On the front panel: "Meat free steaks made from a blend of beans, grains and vegetables. Less than 3% fat. 194 calories per portion. Vegetarian (logo). A passion for Healthier eating." On the back panel are Nutrition Facts, ingredients list and recipe ideas.

3050. **Product Name:** Cassington's beef-style meatballs.
**Manufacturer's Name:** Cassington's Food Co. (Retailer).
**Manufacturer's Address:** Dale House, Leeming Bar, Northallerton, North Yorkshire DL7 9UL. Phone: 0800 84 4776.
**Date of Introduction:** 2008. September.
**Ingredients:** Rehydrated wheat protein (43%), rehydrated soya protein (32%), vegetable oil, onion, sugar, natural flavouring, tomato puree, stabiliser (methyl cellulose), salt, sugar, maize starch, chili powder, garlic powder, potato starch, yeast extract, barley malt extract, onion powder cane sugar, garlic puree, tomato puree, herbs [basil, marjoram, oregano, thyme], black pepper, pea protein, carrot fibre, cumin.
**Wt/Vol., Packaging, Price:** 300 gm. plastic foil pouch.
**How Stored:** Frozen.
**New Product–Documentation:** Packages sent by Yves Potvin of GPI. 2008. Oct. 28. Plastic foil pouch. 8.75 by 8.5 inches. Golden brown, red, yellow, black, and light blue on white. On the upper front panel (and on the back panel) is the logo of Garden Protein International Inc. (Richmond, BC, Canada): "Made with Gardein. Farm grown protein." Two color photos on the front panel show (1) Two kids running down a hill with their dad. (2) Meatless meatballs with sauce on spaghetti, on a white plate. On the front panel: "Meat balls made from a blend of beans, grains and vegetables. Less than 4% fat. 123 calories per portion. Vegetarian society approved (logo). A passion for Healthier eating." On the back panel are Nutrition Facts, ingredients list and recipe ideas.

3051. Greey, Madeline. 2008. Battle of the butters: We blindfolded five young peanut butter enthusiasts for a taste-test trio of nut-free PB substitutes. Here's the spread on how they measured up to the real thing. Nutrition nibbles. *Today's Parent (Toronto, Ontario, Canada).* Sept. p. 188.
• ***Summary:*** The benchmark was "Organic 10% natural smooth peanut butter." 1 tablespoon (15 gm) contains: 10 calories, 3 gm protein, 8 gm fat, 0 mg sodium, 1 gm sugar, 1 gm fibre.

The three contenders: (1) FreeNut Butter. Made from soy. $4.49 per 500 gm jar. website: www.totallynutfree.ca. FreeNut Butter [Soynut Butter, made by Hilton Foods, Staffa, Ontario, Canada] was the top pick of four of the five young taste testers. Nutrition: Fewer calories (90), similar protein, fat, and fibre. "Higher in sodium, with 60 mg per serving–still not bad, considering Skippy brand BP contains 75-95 mg per serving."

(2) I.M. Healthy SoyNut Butter. $6.89 per 435 gm jar. website: soynutbutter.com. Nutrition: 85 calories, similar protein and fibre; less fat than real PB, with only 5.5 gm per serving. Same deal with FreeNut regarding sodium. Kids say: "Sticks to the roof of my mouth like a good peanut butter should."

(3) NoNuts Golden PeaButter. Made from brown peas [not soy]. Contains hydrogenated vegetable oil and thus a small amount of trans fats. Kids say: "It's smooth, no after-taste and tastes a lot like peanut butter.

Color photos show: (1) The three jars of soynut butter. (2) Madeline Greey.

3052. *Organic and Non-GMO Report (The) (Fairfield, Iowa).*2008. Monsanto sale of rBGH called a major milestone. 8(8):4-5. Sept.
• ***Summary:*** Monsanto announced that it has agreed to sell Posilac, its bovine growth hormone, to Eli Lilly and Co. for $300 million. The drug has failed to be approved in Canada, the European Union, Japan, Australia, and New Zealand. Milk "from cows injected with rBGH contains high levels of insulin growth factor-1 (IGF-1), a hormone that is linked to prostate and colon cancer."

3053. Potvin, Yves. 2008. The basic business model of Garden Protein International, Inc. (GPI) (Interview). *SoyaScan Notes.* Oct. 7. Compiled by William Shurtleff of Soyinfo Center.
• ***Summary:*** GPI's main product is Gardein (TM, pronounced gar-DEEN, derived from Garden + protein). In his previous business, Yves Veggie Cuisine, Yves was a retail brand manufacturer. He manufactured everything he sold, and built a brand. Then he realized in 1998, when he developed this new proprietary process, Gardein, that he is now an ingredient manufacturer. That was one reason he sold his former business, but also because his present business is very capital intensive, so he needed more money to get it started.

Many different formulas / recipes are used to make Gardein; its both an art and a science–and constantly evolving with new R&D. All the formulas have much in common (all are meatless. The main ingredients are wheat gluten and soy protein), but each one is different–and thus custom designed–to suit each individual product application. Yves works closely with a chef (and he is also a trained chef with many years of experience) to develop the

best possible formula for each application. The product behaves differently with different sauces (when its a low pH sauce they must start with a softer product. The protein in Gardein reacts to a dairy-based sauce much differently from the way it reacts to a tomato sauce). They have recently started to add new grain ingredients such as quinoa, kamut, amaranth, etc. to give new and interesting textures, and to increase the percentage of grain in the product. In Canada Gardein must be fortified to makes its nutritional value equal to or better than that of the meat product it is designed to replace; this is not required in the USA. The strips that they make for Trader Joe's are simply the raw material (plain Gardein), whereas the Chick'n Breasts they make for Costco are carefully formulated and formed to make a second generation product. GPI has no list of all the different types of Gardein. Rather, each company tells GPI the application, and GPI develops Gardein specifically for that product; no two are the same.

Gardein is always sold in a moist form (62-65% moisture, very much like that of meat)–never dry.

GPI sells Gardein either refrigerated or frozen–to keep it fresh. Any product sold refrigerated must be pasteurized first, which creates a whole new manufacturing cycle. Gardein is still much more difficult to process and handle than meat–for example. Most retailers buy it refrigerated, but most of the bulk product (shipped overseas or to foodservice) is frozen as to Cysco, Kellogg, Loblaw.

In 2005, after two years of solely R&D, Yves started to sell Gardein; his first customer was the Kellogg Co., which was already selling a line of meat alternatives under their Morningstar Farms brand. This began even before sales in bulk to foodservice.

Yves' basic strategy is to sell the ingredient (Gardein) to food product manufacturers, but they are required by a license agreement to put the Gardein logo on the label. The agreement specifies very precisely the size and location of the logo, how the ingredients are to be listed, etc. and the fact that the buyer cannot mix Gardein with meat.

But GPI also sells Gardein in four other ways: (2) Private label, as when they sell to Kellogg's, Loblaw's, President's Choice or Trader Joe's. Each of these customers also signs a licensing agreement. GPI and the customer work together to design and name the product and ingredients. Many private label customers (such as Kellogg and Trader Joe's) design their own package / label–but this can be frustrating sometimes, as when Yves can see that a poor package design will hurt sales of the product. The customer then sends its packages to GPI in Vancouver (actually in Richmond, BC, a suburb of Vancouver) where GPI packages its product.

(3) Control label, as for very large customers such as Costco, under the name Garden Goodness. The Gardein logo appears prominently on both the front (lower right corner) and the back (bottom center) of the attractive box. GPI owns the brand "Garden Goodness." Costco asks GPI to develop the product and to design the package; Costco has to approve of both, but they do not get involved in the details. Costco is happy because no other company has that Garden Goodness brand, and GPI is happy because it is their own label and their Gardein brand prominently displayed. "It is a win-win situation." Presently GPI makes only one SKU for Costco–"6 Veggie Chick'n Breasts," but they are about to launch several new items with Costco. GPI has already made the presentation and Costco liked the ideas.

(4) Under its own label, using the "It's All Good" brand. Initially Yves had no intention of going back into the retail business, because its very painful. But as he was trying to work with his previous company (Yves Veggie Cuisine), they kept saying it was too complicated, etc. So he realized he could use his own brand to do basic R&D. For example, in Canada he has tried selling "Its All Good in the meat section, the deli section, and the produce section of food stores. From this experiment, he has learned where it sells best, and he can share this valuable information with his customers that buy Gardein. He has also learned which product types and names sell best, what's the price point, etc. And he gets lots of consumer feedback about those products. Customers such as Trader Joe's, Costco, and Safeway in Canada always want the best seller in the It's All Good" line. Yves always changes the product name slightly, as from "Tuscan Tomato" to "Basil Tomato." A new product Yves is developing to sell under his own label is a stuffed product (like a stuffed chicken), which is Gardein stuffed with black beans (frijoles) and corn; the package has a tomato sauce inside. GPI uses a broker (who is paid 5%) to get these products into the retail market. In addition, GPI has its own sales force (1 person each in Ohio, New Jersey, and Toronto, and 3 in Vancouver). One guy is responsible for private label, one for the club business, etc. Next Wednesday they will make a presentation at Safeway headquarters; GPI wants to launch the "It's All Good" line with Safeway in the U.S. The week after that they go to Kroger headquarters, then the next week to Publics. Yves attends the most important presentations, which causes him to travel a lot.

Yves is also in the process of raising some money to finance that growth; he projects sales to double in the next 24 months. Currently Yves owns all the shares in GPI Inc. He's basically looking for one venture capitalist who will invest about $1 million in exchange for 10% of the business–just enough to go to the next level. He hopes to find a person who understands his vision and wants to be part of the journey. Yves believes this can be a $1 billion company.

Yves believes that he GPI must be strong in its own back yard before it tries to conquer the world. So his initial focus has been on Vancouver, British Columbia, and Canada

(with 30 million population). His products are all over Canada, with 80% distribution. "But the big market for us is really the U.S." Right now, about 40-50% of his sales are in the USA and 10% in the UK, but in 1-2 years he expects that figure to rise to 70%.

GPI presently has two manufacturing sites in Vancouver, located 5 minutes apart; the second facility is leased, 20,000 square feet, and houses all the sales and marketing. One is the distribution center where all products are shipped fresh, refrigerated. The other site makes products that are sold frozen. As soon as every batch of product is made, it is frozen to keep it fresh. Within the next 2-3 years Yves expects to have one plant in the USA and one in Europe, then one in Asia within 5 years. The product has tremendous global potential. Yves is fortunate to have already started one business, and to have already had so much business experience. This makes the growth go much faster, but its still painful–yet he wouldn't want to be doing anything else. Yves is married and has two kids. He feels that raising a family and growing a business are quite similar.

(3) GPI sells Gardein (as an ingredient, frozen, by the container) to a customer, such as Tesco or Grassington's Food Co. in the UK, which has the product developed and produced, and packaged. Of course they also sign GPI's licensing agreement as described above. In this case the Gardein logo and text must appear in the lower right corner of the front panel: "Made with Gardein (TM). Farm grown protein." UK customers have (so far) asked for GPI's opinion on their package design, and GPI always gives an honest opinion. A new brand in the UK will be "Pick of the Crop."

(4) Food Service Products started with Whole Foods Market in Los Angeles, California, but are now sold to delis, restaurants, schools, catering companies, cafeterias, hospitals, etc. and go mostly through a distributor (such as CANA, UNFI, or Cysco Corp.), unless a company has large enough volume to go direct. GPI's main foodservice customer at present is Whole Foods, which sells Gardein in their deli and displays the Gardein logo prominently on the deli case. When a product is sold to foodservice, GPI realizes that this product will be served in a wide variety of ways (salads, sandwiches, fajitas, in a sauce, etc.), so it must be designed with that flexibility in mind. Moreover, the product must keep its good texture and flavor whether it is eaten hot or cold. As of Oct. 2008 the following products were available to food service: Chicken Cubes, Chicken Strips, Beef Strips, Chicken Breasts (nonbreaded), Beef Burger, Chicken fillets (non-breaded or breaded), and a seasonal Stuffed Turkey.

3054. **Product Name:** SoyButter (Soynut Butter) Smooth, or Crunchy).
**Manufacturer's Name:** Hilton Soy Foods.
**Manufacturer's Address:** Staffa, Ontario, Canada. Phone: 734-973-0778.
**Date of Introduction:** 2008. October.
**Ingredients:** Non-GMO toasted soy, soy oil, granulated cane sugar, monoglyceride (from vegetable oil), sea salt.
**Wt/Vol., Packaging, Price:** 20 kg bag in box, 20 kg pail, 500 lb drums, 2,400 lb bulk totes.
**How Stored:** Store in a cool, dry, dark place.
**New Product–Documentation:** Mailing sent by David Singsank, Hilton Soy Foods, 2863 Quail Hollow Ct., Ann Arbor, Michigan 48108. 2009. March 19. Contains a cover letter, 2 undated news releases, a glossy sell sheet (titled "SoyButter: You won't believe its NOT peanut butter"), and a new product announcement. Website: www.soybutter.com.

Soyinfo Center taste test: Very nice. Tastes a lot like peanut butter, but quite a bit sweeter.

E-mail from David Sinksank. 2009. March 20. The company deliberately decided not to call this "Soynut Butter" in order to keep the dreaded word "nut" (for those with peanut allergies) out of the product name. Moreover, 95% of mainstream consumers have never heard of either "soy butter" or "soynut butter." "Right now we have this product in 85 food service distributors, most of which is sold in schools, some in vegetarian restaurants."

"Our SchoolSafe SoyButter has been sold in 17.6 oz jars in 2,000 Walmart superstores for 6 months now as SoyButter under its Private Label Great Value. Tree of Life just finished its new label for both smooth and crunchy as Soy Wonder SoyButter. Also A&P stores on the East Coast. About 10 other supermarket chains will launch the jars in 2009 as well." As for the ingredient listing, which now reads "Non-GMO toasted soy," they originally had "Soybeans," "but considering such a large percent of mainstream still turns their nose up at soy or bean anything, we wanted to use what we felt was the most likely soy word to not cause that reaction. We may add the word 'whole' in front of 'soy.' Hilton's product is 10-15% less expensive that competing brands. Why? "Hilton grows their own soybeans, and does all the cleaning, toasting and processing themselves (on farm), so I guess they have lower overhead, including no transporting here and there for those various processes."

The product is made by Hilton Whole Grain Millers Ltd. A member of Soyfoods Canada. Their listing reads: Contact: Scott Mahon RR#2 6939 Line 26 Staffa, ON Canada N0K 1Y0. Phone: 519-345-0111.

Letter (e-mail) from David Singsank. 2009. March 28. Hilton is owned by Barry & Karen Mahon and their 3 sons, all of whom are involved in the farming and all steps of processing. They make the "best" soynuts (the most important part of the soybutter), toasted soynut pieces, and toasted soy flour. Nothing else, just Soy. Non-GMO and Kosher. The plant is also certified organic, and indeed currently has customers for the OG SoyNuts and Flour.

David also send 3 color attachments: (1) Hilton Soy Foods: Soy foods have never tasted this good! Hilton has their own 20,000 sq. foot. facility, located near Stratford, Ontario, Canada. They are able to maintain the highest quality standard. "Our plant and products are Gluten Free, Dairy Free, Kosher certified and 100 Peanut Free and Tree Nut Free." (2) SoyButter: The testimonials keep coming. Eight glowing testimonials. (3) Article from *Today's Parent* magazine [Toronto, Ontario, Canada], titled "Battle of the butters" (Sept. 2008, p. 188). FreeNut Butter [Soynut Butter, made by Hilton Foods, Canada] was the top pick of four of the five young taste testers.

3055. McMullen, Michelle. 2008. Needed: Consistent non-GM soybean supply from Canada. *Ontario Soybean Growers' Update.* Oct. p. 1.
• ***Summary:*** "The Canadian Soybean Council's (CSC) 2008 incoming mission of Japanese buyers emphasized the importance of Canada's continued commitment to producing quality non-GM soybeans. Tsuento Sasaki, Trade Commissioner from the Canadian Embassy in Tokyo, joined the mission. Japan is Canada's largest market for food-grade soybeans.

"The group unanimously said that Japan's consumers will continue to demand non-GM food products. This presents a tremendous opportunity for Canada to increase its share of the Japanese market, as other non-GM soybean producing countries are unable to meet the demand.

"'The Japanese market is confident in Canada's ability to produce a quality, segregated non-GM soybean product,' says Jim Gowland, CSC Chair. 'Japanese soyfood manufacturers are now looking to Canada to be a consistent supplier of non-GM soybeans.'

"Japan continues to be Canada's largest importer of IP (identity preserved) non-GM soybeans. Nearly 100% of Canada's exports are non-GM for the food market. In 2007, Japan's total soybean imports totaled 4.16 million metric tonnes, and Canada accounted for 7% of that amount. Of that 2007 total, approximately 1 million metric tonnes were for food uses.

"'Companies from across Japan are concerned about their ability to source non-GM soybeans in the future and are offering attractive premiums to producers for the extra work associated with growing IP soybeans,' says Gowland. 'Skilled, innovative Canadian soybean producers are needed to help meet the demand of markets such as Japan.'"

A photo shows a team of about five Japanese soy food manufacturers examining Ontario soybeans growing on a farm in September. "Ontario soybeans are the basis for Japan's highest quality tofu and miso products." Address: Canadian Soybean Council Manager.

3056. *Organic and Non-GMO Report (The) (Fairfield, Iowa).*2008. Japanese company to triple non-GMO soy production in Canada: Market news. 8(9):9. Oct.
• ***Summary:*** In a few years, Kanematsu Corporation (Japan) plans to triple planting of non-GMO (not genetically engineered) soybeans for food use on 50,000 acres on Prince Edward Island, Canada.

Next year, PEI's soybean production is expected to be 15,000 metric tons grown on 15,000 acres–all for shipment to Japan. PEI farmers are shifting to growing organic soybeans from potatoes, which require high pesticide use and are less profitable due to falling demand.

Japanese makers of tofu, soy sauce, and other food processors use about 1 million tons a year of non-GE soybeans from overseas in addition to domestic organic soybeans. Kanematsu provides about 10% of those non-GE imports.

3057. Lyddon, Chris. 2008. Global grain trade review: Volatility the dominant factor in the 'wildest 12 month history of the grain market.' *World Grain* 26(11):26-33. Nov.
• ***Summary:*** A table titled "Global grain trade activity (in 1,000 tonnes)" gives the following statistics for soybeans: 2007-08 Top exporters: 1. United States 31,434. 2. Brazil 25,500. 3. Argentina 13,500. 4. Paraguay 5,080. 5. Canada 1,825. World total 78,968 (+15% over last year).

Top soybean importers: China 36,500. E.U.-27 15,400. 3. Japan 4,050. 4. Mexico 3,750. 5. Argentina 2,950.

Also gives the top 5 importers and exporters of soybean meal for 2007-08. Exporters include: 4. India 4,850. 5. Paraguay 1,112. World total 56,2062 (+6%). Top importers: 1. E.U.-27 23,900. 2. Indonesia 2,400. 3. Vietnam 2,400. 4. Thailand 1,950. 5. Korea 1,835.

Various factors have been cited as the cause of this volatility: (1) Energy policy–using maize, rapeseed, and soybeans to make biofuels. (2) Commodity speculators–who can make prices rise faster than they would otherwise. (3) Hedge fund position limits. (4) Government intervention by embargoes and export taxes. (5) The low value of the U.S. dollar. (6) The long term trend (spanning about 15 years) of declining wheat acres. (7) Fundamentally tight stocks. (8) Disruption of supply by things like floods. Address: European editor; chris.lyddon@ntlworld.com.

3058. Ontario Farm Products Marketing Commission. 2008. "Grain Farmers of Ontario" transition begins (News release). Ontario, Canada: Ontario Ministry of Agriculture, Food & Rural Affairs (OMAFRA). 1 p. Dec. 12.
• ***Summary:*** "Guelph, Ontario–The three organizations representing Ontario corn, soybean, and wheat producers will immediately begin the transition to Grain Farmers of Ontario (GFO) following a news release from the Vice Chair of Ontario Farm Products Marketing Commission earlier today.

The announcement completes a four-year process driven by resolutions from members of Ontario Corn Producers' Association (OCPA), Ontario Soybean Growers (OSG) and Ontario Wheat Producers' Marketing Board (OWPMB). Resolutions were in support of forming one organization to represent the needs of Ontario corn, soybean and wheat producers. A producer vote involving all 29,000 members of the three organizations was held in Sept. 2008.

"Under the current transition plan OCPA, OSG, and OWPMB are expected to dissolve upon completion of the legislative process. A transitional board and CEO will be in place later in 2009. Elections for 150 delegate positions and 15 directors will take place on an annual basis beginning Jan. 2010."

3059. Schweitzer, Peter. 2009. Re: Plenty's soy dairy project at Solola, Guatemala. Letter (e-mail) to William Shurtleff at Soyinfo Center, Jan. 5–in reply to questions. Typed, with signature on letterhead.

• ***Summary:*** Q: Why were you attracted to Mayans after the Feb. 1976 earthquake rather than just any Guatemalans? Ans: "We immediately noticed that the Mayans were the poorest segment of the population and we identified with their indigenous culture and spiritual world view. They had suffered the most from the earthquake and needed the most help. When we connected with the Canadian Embassy they had already decided to get involved in reconstruction and they wanted Plenty to help rebuild the Mayan town of San Andres Itzapa–a Mayan community."

Q: Why give them a radio station–which the Military government must have suspected as being subversive / revolutionary and thus highly suspect? Ans: "After the earthquake, the military government was more benign than it would become after Ronald Reagan was elected in 1980. We were also more naive about how truly ruthless that government would become with the encouragement and support of the right-wing Reagan foreign policy team."

Q: Does anyone ever discuss the question: Would the soy dairy in Solola have been more successful in the long run if it had be a private rather than a communal enterprise? Ans: "It would have been difficult to start the dairy as a private enterprise without stirring up a lot of jealousy within the community so it had to start as a community-based enterprise in order to gain acceptance. The concept of "private enterprise" was foreign to the Mayan culture and remember, the Farm was collective during that period which gave Plenty many advantages as a nonprofit with a large source of volunteers and very low overhead." Address: Executive Director, Plenty, P.O. Box 394, Summertown, Tennessee 38483. Phone: (931) 964-4864.

3060. WISHH. 2009. WISHH–World Initiative for Soy in Human Health. (Website printout–part). http://www.wishh.org. Printed Jan. 29.

• ***Summary:*** Contents: Home. About WISHH: Mission and vision, WISHH Committee, Our supporters / partners, Staff. Global outreach: WISHH has activities in the following countries, listed alphabetically and highlighted in green: Afghanistan, Bangladesh, Botswana, Burkina Faso, Cambodia, Ivory Coast, Ghana, Guatemala, Haiti, Honduras, India, Indonesia, Kenya, Mozambique, Pakistan, Senegal, South Africa, Uganda, Vietnam, Zimbabwe. These countries are shown on a map of the world and each program is described in considerable detail if you click on the name of that country below the map. Another group of countries in the same list, whose names are written in black, are those where WISHH presently has projects but (being very busy and active) has not yet had time to describe that project and add a color photo. They are: Angola, Democratic Republic of the Congo (DRC), Ethiopia, Malawi, Nicaragua, Nigeria, Tajikistan, Tanzania.

Media communications: Press releases, Newsletters, Annual reports, Photo gallery (very interesting). Workshops / Training: International workshops, Washington, DC, workshops, Midwest workshops, Other training. Nutrition library: Nutrition HIV/AIDS overview, WISHH presentations, WISHH papers / publications, WISHH HIV/AIDS activities, HIV/AIDS resources, SoyCow & VitaGoat, Economics of soy. Resources / Links: Soybean organizations and agencies (33), U.S. government and international organizations (13). About soy: Soy products, composition of soy, US soy production, Supplier list. Contact us: The WISHH office is co-located with the American Soybean Association office near St. Louis, Missouri.

"Global outreach: WISHH works with multiple private voluntary organizations and commercial companies in more than 28 different developing countries in Africa, Asia and Central America. Many of these groups are using U.S. high-protein soy to improve diets and health as well as encourage growth of food industries in developing countries."

Supplier list–Suppliers of soy and soy products: ADM, Bunge Milling, Cargill, Inc., CHS (Cenex Harvest States), Soya Kenya (agent for CHS in Kenya), Louis Dreyfus Corp., Nedan Oil Mills (Pty) Ltd. (Afgri Products) (Republic of South Africa), North American Millers' Association, Rab Processors Ltd. (Malawi). Seba Foods (Malawi), The Solae Co., Soy Afric (Kenya), SunOpta Food Group LLC (USA), Zeeland Farm Soya (USA).

SoyCow & VitaGoat: Both are manufactured and supplied by Malnutrition Matters (Frank Daller), 498 Rivershore Crescent, Ottawa, ON, Canada K1J 7Y7. www.malnutrition.org. Details about each low-tech machine are given.

Color photos show: The SoyaCow and VitaGoat, from Nutrition Matters (Frank Daller), Ottawa, Ontario, Canada, at a soymilk and tofu workshop (May 2007) in KwaZulu-Natal, South Africa. Photos by Peter Golbitz.

## Canadian SoyCow and VitaGoat Bring Soymilk and Tofu to South Africa


**Cutting the Block of Tofu into Cakes**

**Curding the Soymilk to Make Tofu**

**Taste Panel for Tofu and Soymilk in Kwa-Zulu, Natal, South Africa**

Address: 12125 Woodcrest Executive Dr., Suite 100, St. Louis, MO 63141. Phone: (314) 576-1770.

3061. *Ontario Soybean Growers' Update.*2009. Canadian Soybean Council–Conseil Canadien du Soya. Jan. p. 1.
• ***Summary:*** "The Canadian Soybean Council (CSC) is pleased to announce the launch of its new website, www.soybeancouncil.ca. The site is a comprehensive source for information on Canadian soybeans.

"The website's content currently targets the information needs of international soybean buyers, and will grow to include information for Canadian soybean growers and industry stakeholders. The site will be fully bilingual in English and French, with some aspects also being translated into Japanese and Chinese. "'The goal of our website is to keep our current and potential soybean customers informed about what's happening in Canada,' says Jim Gowland, CSC Chair. 'We look forward to seeing the site grow to meet the needs of our industry stakeholders and Canadian soybean producers.'

"The new CSC website was developed by the Canadian International Grains Institute (CIGI)." Address: Guelph, ONT, Canada.

3062. *Ontario Soybean Growers' Update.*2009. Yield challenge winners announced. Jan. p. 1.
• ***Summary:*** "Nine growers from across the province were recognized for outstanding soybean yields at a special award ceremony on December 18 in Guelph. The winners were chosen from among the forty farmers who entered the first-ever Ontario Soybean Growers' Yield Challenge.

"Some interesting overall statistics were gleaned from the entrants' submitted harvest surveys. The average yield reported was 59.4 bushels per acre, with a range from 47.5 to 72.1 bushels per acre. May planting was the norm, with 48 per cent using conventional seed and 52 per cent using Roundup Ready varieties. Tillage practices were evenly split between conventional, no-till and minimum till. The most common seeding rate was between 200,000 and 225,000 seeds per acre. In terms of field rotation, 88 per cent of the entrants grew corn in the prior year; the rest grew either wheat, alfalfa or other beans. Thirty-two percent

reported using foliar fertilizer, and fifty-two per cent used foliar fungicide.

"First, second and third place prizes were presented for each of three provincial heat unit zones based on maturity groups. All nine finalists received an OSG Yield Challenge jacket. The runners-up received two complimentary tickets each for both the Canadian International Farm Show in Toronto, and Canada's Outdoor Farm Show. First-place winners received a cheque for their yield per acre, multiplied by $10.00.

"OSG established the Soybean Yield Challenge to raise awareness among growers of factors affecting soybean yields. A panel discussion among the winners illuminated their crop production management techniques.

A table shows: (1) The zone and cumulative heat units (CHU). (2) Names of the winner, 1st runner-up, and 2nd runner-up. (3) Location in Ontario. (4) Yield in bushels per acre. (5) Variety–NK (Northrup King) varieties won the most prizes.

Zone 1 is 2700 CHU and under. Zone 2 is 2725 to 3000 CHU. Zone 3 is 3025 CHU and above.

Note: Warmer areas generally have higher CHUs and higher yields. The highest yield was achieved by Casey Claver in Seaforth (Zone 3) at 72.1 bu / acre using an NK-S21-N6 variety. winners Address: Guelph, ONT, Canada.

3063. Viavant, Suzi Jenkins. 2009. Re: Introducing soyfoods to the highlands of Guatemala. Letter to William Shurtleff at Soyinfo Center, Feb. 5. 6 p. 28 cm.

• ***Summary:*** A cry for help on the ham radio: On February 4, 1976, a devastating earthquake hit Guatemala at 3:01 a.m. local time, while most people were asleep, taking at least 23,000 lives. Approximately 76,000 were injured, and many thousands left homeless. Some areas went without electricity and communication for days, but a desperate cry for help on the ham radio managed to reach "The Farm," a self-sufficient spiritual community in Summertown, Tennessee, founded by Stephen Gaskin. In response, Plenty, The Farm's community outreach program, chose three carpenters to help with the reconstruction efforts. Dennis Martin, Pedro Grey and Melvyn Stiriss were soon flying to Guatemala armed with only their skills, a backpack full of tools and a desire to help rebuild.

Reconstruction Project: Dennis Martin, a natural at networking, was quick to forge strong connections with members of the Canadian Embassy, Clive Carruthers, acting as the Canadian Chargé d'Affaires, and Rick Bronson, administrator of funds for the Canadian International Development Agencies (CIDA). Martin soon discovered that CIDA had a shipment of prefab housing materials and funds on the way for the reconstruction of Guatemalan towns that had been destroyed in the earthquake. Martin pledged to CIDA that if they were to grant him funds and these materials, Plenty would aid in the reconstruction of the town of San Andres Itzapa, in the municipality of Chimaltenango, and build thirteen schools. CIDA agreed, and thus began Plenty's Guatemalan Project.

The Clinic Program: With a few months, many carpenters from The Farm had volunteered for the reconstruction effort, and the Project was quickly underway. However, as they began clearing debris and rubble, a new crisis emerged. They were horrified to find infants, many orphaned, in dire need of medical attention. The Project urgently requested volunteers with medical knowledge to come and provide assistance. Mary Louise Perkins and her medical and public health crew from The Farm answered that call and soon set up a medical clinic in the Plenty camp, which at that time was no more than one kitchen structure, a few platformed tents surrounded by a coffee plantation and corn field. The clinic was later joined by Thomas Wartinger acting as site physician.

The Orphanage: The number of infants and children orphaned by the earthquake had reached a critical point. The Farm sent out request to its members for single female volunteers to help establish an orphanage. In June 10, 1977, I volunteered along with five other women to go to Guatemala and help set up the orphanage. We became known as the Angel Crew. Our responsibilities involved one-on-one parenting of a single infant, collectively caring for 37 children, and preparing three meals a day for around 90 people consisting of orphans, patients at the clinic, and volunteers involved in the Project. Along with the orphans, many locals joined our team, including several teenagers who had been living on the streets of Guatemala, who we helped recover from drug addictions. My baby was Maria Cruz who was severely malnourished. After several months of nursing her back to health using primarily diluted soy formula she regained her health and was later adopted by Alan and Jane Graf, one of the Plenty couples.

At that time the infant mortality rate was around 50%. Some of the infants came to us extremely malnourished and underweight–at an age of eight months some weighed a mere eight pounds (the weight of most infants at birth!). We fed these babies diluted soy formula through an eyedropper, but in some cases it was simply too late. The only thing that made the heart-breaking experience of losing a child bearable was that we were able to save others. Some returned home if they had one, and others were adopted. However, many of the children we treated went home only to return to us again in a short time, again malnourished. Most of the children in Guatemala were given only tortillas to eat, and it became increasingly clear to me that many Guatemalan mothers needed to be educated about how to provide for their children's basic nutritional needs.

Soy Agriculture & Demonstration Program: Aware of the undernourishment of the people of Itzapa and the high nutritional benefits of soybeans and soy products, we forged a plan to introduce soybeans as a new crop to the local

farmers. Our goal was to supplement the diet of the local villagers with high-quality protein while also providing a source of income to the farmers. Soybeans seemed like a viable solution since the farmers had only small plots of land and soybeans can yield high amounts of protein per acre.

In October of 1978, Darryl Jordan, a member of the Plenty team who specialized in agriculture, initiated the soy program. He contacted INTSOY at the University of Illinois and asked if he could conduct one of their international soybean variety trials; he was sent 20 soybean varieties, written procedures to follow, and forms showing results to fill out and return to INTSOY. Itzapa sits at an elevation of 5,860 feet, which at that time, was the highest growing elevation ever tested. Darryl was joined later by Craig Bialick, another team member, who planted and tested the different varieties of which Cobb, Bosier & Davis proved to yield well. As the interest in the new crop increased among the passing farmers, they wanted to know about the new bean and how could they grow it. Since I had a background in producing tempeh for The Farm, Darryl approached me with the idea of teaching the locals about soy products and how to prepare them.

I began by writing a proposal which I submitted to UNICEF Guatemala requesting $6,000.00 to fund in-home soy cooking classes in the area of Itzapa. They gave me the funds I requested along with a two-gallon stainless steel pot and The Soy Demo Project was born. The first classes were held with the wives of the farmers that were involved in growing the soybeans which had proven to grow well at the 5,860 ft. elevation. I taught them using the same utensils that they used themselves, such as a rock grinding stone and cooking on a wood fire; this way every woman who took the class would be able to use the same methods in her own home.

The class size averaged 6-8 neighborhood women along with about 15 children. I would teach the class in Spanish (which I learned informally after arriving in Guatemala), and Maria Sal, a local Indian mother of five who joined our team, would translate in Cakchiquel (a Mayan dialect). The children loved eating the soyfoods and news traveled fast; at the end of each class I would find myself surrounded by 20-30 children, all waiting eagerly for a sample. Interest among the women grew quickly as well. Word spread throughout the area and the requests for classes became overwhelming. I was soon teaching soy demo classes not only in Itzapa, but in many of the neighboring villages as well. By June 1979 approximately 200 women were taught.

The Soy Promoters Program: In one of Itzapa's neighboring villages, San Jose Poaquil, a Guatemalan agency named World Neighbors had set-up a cooperative that held classes in agriculture. While performing a class there, I met a Latino Guatemalan named Amado del Valle, who was the director of the program. (Note: In this context, "Latino," refers to one whose ancestry is largely Spanish rather than indigenous Mayan; for centuries there has been both conflict and intermarriage between these two groups). With his background in agriculture he was very interested in what the soybean had to offer for Guatemala's protein crisis. I realized I needed help spreading the word, so he offered 8 women from his cooperative to become teachers.

In August 1979, we wrote a proposal requesting funding from CIDA to provide the equipment, supplies and training for the cooperative promoters, who would in turn train others in the preparation of soyfoods. I donated my salary as a volunteer and UNICEF donated several thousand dollars towards the project, the total amount of which would then be matched by CIDA. Previously CIDA was able to contribute matching funds through Plenty USA. However at this time, to continue their funding, Plenty needed to obtain a Canadian NGO nonprofit status; we did this through our sister Farm in Canada and we received $11,000.00 for the program. There was good acceptance in Poaquil, especially in the low parts of the municipality. Each promoter had about five groups, some of them walked 15 miles and approximately four hours to get to their groups. We trained them at their cooperative and later went with them to their villages to observe one class. We left them with soybeans, supplies, and funding to continue teaching on their own, visiting them occasionally checking in on their books, and charts, which they kept on all classes. Continued. Address: Salt Lake City, Utah.

3064. Viavant, Suzi Jenkins. 2009. Re: Introducing soyfoods to the highlands of Guatemala. II. Continued. Letter to William Shurtleff at Soyinfo Center, Feb. 5. 6 p. 28 cm.

• ***Summary:*** Continued: In September 1979 the immediate food and housing crisis in the area had been solved, so we began to focus on long-term developments in agriculture and nutrition. As we moved from that area of Guatemala we began to realize the town had grown accustomed to our medical assistance and were growing dependent upon our charity. It became apparent that we needed to develop a means to allow the indigenous community to help themselves. We moved our camp from Itzapa to Solola, where we had built a Mayan municipality building and several schools. Darryl and his wife Leslie returned to the Farm with their adopted baby named Irma, one of the recovered babies that had been abandoned. Since our project focus changed, as we moved to Solola most of the medical crew returned to the USA after adopting (and taking with them) most of the rest of the 7-10 children in our orphanage; most of these children grew up in the USA and never returned to Guatemala to stay.

The Soy Dairy Project: Although the soyfoods were very popular and classes were available, many women in

Guatemala did not consistently have time to make their own soy products at home. To address this need, Plenty wrote another proposal to CIDA for $31,000.00 to build a soy dairy that would operate as a cottage industry. Building the dairy would enable us to produce soyfoods on a large scale, create job opportunities, and make soy products available for purchase to the people of Guatemala. Soy ice cream seemed to be a good product choice to focus on. Its production required less education and ice cream was very popular throughout Guatemala.

We decided to build the dairy in the community of San Bartolo, Solola, where we had moved our camp. We had established a good rapport with the community's reconstruction committee. We had already built a school and installed a water system for them which featured a water spigot in every home. The water system had improved the quality of life immensely in San Bartolo, as before they had to carry water for several miles to their homes. My knowledge of large scale soymilk production was limited so Plenty approached Laurie Praskin, the soyfoods expert who for years was in charge of producing soy milk and tofu on a large scale for The Farm community in Tennessee. Laurie accepted and I returned to the United States to help her purchase the equipment needed. We traveled across the country educating people about our cause. We were able to get some of the equipment donated and purchased the rest with the funding we had received–including two 50 gallon stainless steel pots that Laurie acquired from the Boy Scouts of America.

In the summer of 1979 we shipped the equipment to Guatemala along with seven tons of soybeans, and I returned to Guatemala with Laurie as my partner. Laurie's husband, Alan Praskin, was also an agriculture specialist who joined with Craig Bialick to continue doing more soybean variety trials at different altitudes. They did one trial with 16 different varieties in San Martin Jilotepecque, where they partnered with Amado del Valle, the director of the World Neighbors Cooperative where we trained the eight soy promoters. They also did a trial in the Solola area which at 7,200 ft. was the highest elevation ever tested at that time using INTSOY varieties.

On February 19, 1980 the facility was finished, and the Soy Dairy was inaugurated. Our long-term plan was to turn over full operation of the dairy to the people of San Bartolo so our first task was to choose and train a local to oversee the project. We chose Agustin Xoquic. He had been head of the reconstruction committee in San Bartolo at the time we had installed the water system, and we had developed a very strong bond with him and his family. We lived in the Mayan community, training Agustin and his wife Elena to oversee the dairy. The Soy Demo Promoter's project continued while also operating the soy factory project.

As of August 31, 1980, there had been 117 promoter classes and 1,013 men and women were taught how to make soymilk and tofu in their homes through the Soy Promoter program. Small women's groups had collectively grown their own plot of soybeans. This program was similarly implemented in San Martin Jilotepecque, Chimaltenango, with another World Neighbors Cooperative. Eight women were approved as soy promoters and taught 307 men and women. Over 100 people in San Martin planted soybeans that year. Between all the cooperatives, they harvested approximately 8,000 pounds of soybeans for their own needs and the remaining amount was sold to the *Fabrica de Soya* (Soy Dairy) in Solola.

In Solola, Laurie and I held cooking classes in the town, teaching Latino women, how to prepare fancier dishes such as lasagna, blended tofu dishes, fried and scrambled tofu. These ladies had electric blenders, ovens, and tofu, which was now available in the local market produced by the Fabrica de Soya in Solola. We also continued our classes with the Indigenous people in the surrounding villages of Solola.

We also began working with Berhorst Hospital in Chimaltenango, where we had often taken some of our patients. They were very enthusiastic about soy technology and asked us if we could get them enough soybeans to supply soymilk and tofu for their patient's daily consumption. They also asked us if we could get them an ice cream machine for making soy ice cream for sales to their patients. The current practice is for the patients to go to the local store and get junk food without much nutritional value. They wanted a high quality protein product such as soy ice cream, to be available for their patients. We began holding demonstrations at the hospital with 35 volunteer promoters from the surrounding villages of Chimaltenango.

After eight months of training the employees at the soy factory, the political climate in Guatemala became violent. People we worked with on our water projects were put on "hit lists," and since we did not want to jeopardize anyone's safety we were forced to prematurely leave the soy factory project in the hands of people in San Bartolo.

On September 22, 1980 we returned to the U.S. Since Darryl Jordan returned earlier he had published an article about the soy project in a development newsletter titled *League for Food Education (L.I.F.E.).* We received responses from fifty different countries requesting advice on how to set up similar projects. We then published the *Plenty Agricultural Program: Guatemala* booklet (1980, 46 p.) and the *Plenty Integrated Soy Program, Guatemala* (1982, 48 p.) booklet to help educate the many people from whom we had received inquiries, along with those from other interested organizations.

After we left Guatemala, Amado Del Valle worked with Food for the Hungry in efforts to set up two more soy dairies in Zacapa, but the political violence from Guatemala's civil war made it too dangerous to complete. It

had also become too dangerous for the Soy Factory in Solola to operate, so it closed as well.

On May 27, 1981, Amado left Guatemala and arrived at The Farm in Tennessee, to study large scale production of soyfoods; he later went on to the Canada Farm. In September of 1985, he returned to Guatemala with funding from Plenty Canada at which time he helped Agustin reopen the soy factory and become the Director for three years. It was reborn as Alimentos San Bartolo, community owned and managed, although Agustin and Elena were still in charge of production, and remain so to this day.

On March 7, 1991 the soy project land was officially turned over to the committee of San Bartolo. Chuck Haren and other members of Plenty periodically traveled to Guatemala to help with funding and equipment upgrades.

In June of 1995 with help from Plenty USA and funding from Food for the Hungry, I returned to Guatemala to do a marketing upgrade which I completed in three months. I wrote a Spanish-language booklet with local recipes titled *Recetas de Soya (Soyfoods Recipes)*, had 1,000 copies printed, and used it at soyfoods classes, some of which were held at local restaurants.

In August of 2006, each household in San Bartolo was bought out for an amount of money equal to their share of the project. The project was restructured from a community owned business to an association named *Asociacion de Desarrollo Integral Belen (ADIBE)*, but it is still directed by the committee of San Bartolo, which is elected every 4 years by the community. Address: Salt Lake City, Utah.

3065. Viavant, Suzi Jenkins. 2009. Re: Introducing soyfoods to the highlands of Guatemala. III. Continued. Letter to William Shurtleff at Soyinfo Center, Feb. 5. 6 p. 28 cm.

• ***Summary:*** Continued: In July of 2008 the members of ADIBE traveled to Guatemala City to compete and present all of their products at a National Rural Development contest; they were recognized as one of ten winners and were awarded 46,000 quetzals.

The project has become a model project worldwide. The soy dairy has operated as a self-sufficient business for twenty-nine years. It employs seven members of the Mayan community full-time and perhaps most importantly, continues to supplement the protein intake of the Mayan children.

As of August 21, 2008: The current items produced and sold weekly are: 40 gallons of soymilk, 110 pounds of tofu, 15 gallons of soy ice cream, 20 pounds of tempeh, and 20 pounds of soy flour.

In October of 2007, Amado del Valle developed several new products which the soy factory now produces; shampoo, face cream and hand soap (all made from tofu whey, which was previously discarded).

As it is becoming increasingly more popular to be "green," we, the people of this planet, should harness this global consciousness and set up more projects of this kind, which has proven to make the most of our world's resources and provide quality nutrition and education to people who would otherwise not have them. With more funding, education and organization of the planet's resources, there would be plenty of protein to go around, and malnutrition could be a thing of the past–this is my dream. My experience has taught me that small donations, desire, grass roots commitment and organization can change and save lives.

Note: This article is written from the memory of my experience setting up the Soy Demonstration Programs in Guatemala. However I would like to acknowledge that the success of the soy program involved many Plenty volunteers and Farm members, who have contributed or supported the project directly or indirectly over many years. I apologize if I missed mentioning anybody.

Even though I am no longer a member of Plenty, I have still consistently returned to Guatemala to check-up on the project and bring them supplies.

For more information please contact: Suzi at soysolutions@gmail.com or Plenty International, P.O. Box 394, Summertown, Tennessee 38483. Phone: (931) 964-4323. www.plenty.org. plenty@plenty.org. Address: Salt Lake City, Utah.

3066. Hain Celestial Group, Inc. (The). 2009. Annual report 2008. Melville, New York. 60 p. Feb. 27. 28 cm.

• ***Summary:*** Begins with an 8-page question and answer session with Irwin Simon, the CEO. Net sales for the year ended 30 June 2008 were $1,056,371, up 17.3% from 2007. Net income in 2008 was $41.221 million, down 13.3% from 2007.

Acquisitions and divestitures: On 6 March 2008 Hain acquired nSpired Natural Foods Inc., with its MaraNatha and SunSpire brands, for approximately $37.6 million in cash, including transaction costs. MaraNatha makes nut butters and SunSpire gives Hain an entry into the natural Candy category.

On 10 March 2008 Hain Pure Protein Corp., a 50.1% owned subsidiary, acquired the turkey production facility and distribution center of Pilgrim's Pride Corp. of New Oxford, Pennsylvania, for $19.1 million in cash. This expands Hain's ability to offer branded, premium poultry products.

On 2 April 2008 acquired Daily Bread Ltd., a London-based manufacturer of branded fresh prepared foods for the foodservice channel in the UK for about $36.5 million in cash.

Accompanying the annual report is a "Notice of Annual Meeting of Stockholders and Proxy Statement" (71 p.). Irwin Simon, the founder and CEO, age 50, had the

following annual compensation: Salary: $1.325 million. Total compensation: $7.380 million. Address: 58 South Service Road, Melville, New York 11747-2342. Phone: 631-730-2200.

3067. *Ontario Soybean Growers' Update.*2009. Grain Farmers of Ontario: Transition in progress. Feb. p. 1.
• ***Summary:*** "It's been almost five years since the leaders of the three organizations representing Ontario corn, soybean and wheat producers signed a Memorandum of Understanding to explore the idea of forming one association. At that time the Ontario Soybean Growers (OSG), Ontario Corn Producer' Association (OCPA), and Ontario Wheat Producers' Marketing Board (OWPMB) had "no predetermination" of how the result might look.

"Nearly five years later the results of last September's producer vote have sent a clear message to the Minister of Agriculture, who announced in December 2008 a decision to form "Grain Farmers of Ontario."

"Now, the real work begins.

"Staff, directors, and government will spend the coming months working out the logistics for GFO to become a reality. An oversight committee has been appointed to monitor the transition both from a government and regulatory perspective, as well as implementation. Both teams are aiming to complete their work by the target date of June 2009.

"From a legislative side, the provincial government needs to follow a process that would make GFO responsible for a number of the authorities currently held by one or all three of the existing boards, such as the authority to market wheat, or negotiating authority that is held by the soybean board.

"Implementing a new structure for staff and directors is a more detailed process, and the leadership of the three organizations is determined to get it right. The Boards have hired the expertise of a "change management" firm to engage staff during the transition while a staff structure incorporating the three teams is put into place.

"Another significant change to come is the adjustment from a total of 41 directors to 15, and a shift toward 150 delegates that will have more involvement in board committees.

"Despite the changes that are to come, all three boards are operating on a "business as usual" basis to ensure a smooth transition to the official launch of GFO. That means directors and committee members elected at January district meetings will continue to serve their particular boards, and staff will maintain the status quo on programs and projects until GFO is in place.

"For updates and information about Grain Farmers of Ontario visit www.grainfarmersontario.ca." Address: Guelph, ONT, Canada.

3068. Singsank, David. 2009. Re: Hilton Soy Foods (Staffa, Ontario, Canada) and American Health and Nutrition, Inc. (Ann Arbor, Michigan). Letter (e-mail) to William Shurtleff at Soyinfo Center, March 28. 1 p.
• ***Summary:*** David has worked with the Mahons (founders, owners and operators of Hilton Soy Foods) since 1990 when they were first involved with making organically grown rolled oats and other oat and flaked grain products. In about 1995, they purchased a large soybean toasting machine and that was their start in that business. "We (American Health & Nutrition {AH&N}) were the exclusive USA distributor for them thru 2006." They then exited the oat business and went solely into making soynuts, soynut butter, and soy flour.

In about 1998 or 1999 we (AH&N) created our soynut line under the name "The Organic Garden," of course using their soynuts. We exited that in about 2004 due to not having sufficient capital to expand it. Right now, Hilton only produces these for various bulk customers. Genisoy recently lost their supplier and almost went with ours (Hilton) but went for a cheaper priced product.

Dennis (David's twin brother) and David jointly manage all of Hilton's sales and marketing worldwide, concentrating on the SoyButter. They sold 80% of AH&N at the beginning of 2007, stayed with the company until the beginning of 2008, and finally sold the last 20%. Then, starting in the summer of 2008, they began working exclusively with Hilton Soy Foods.

AH&N changed its name to NewOrganics last year. "We have a noncompete agreement with NewOrganics until the end of 2010 on virtually anything organic or conventional Non-GMO, except the products Hilton makes.

The Mahons were originally dairy farmers until sometime in the mid-1980s when they sold off their dairy operation and started the rolled oats business.

"AH&N's address is 3990 Varsity, but my only address now is 2863 Quail Hollow Ct. Ann Arbor, MI 48108. This is also the USA address for Hilton Soy Foods." Address: 3990 Varsity Dr., Ann Arbor, Michigan 48108. Phone: 734-973-0778.

3069. Mahon, Scott. 2009. History of work with soybeans, soyfoods, and SoyButter (Soynut Butter) (Interview). *SoyaScan Notes.* March 30.
• ***Summary:*** Scott's grandfather, William Mahon (pronounced MA-hun, who is now age 93), used to own land near Toronto, Ontario, where he was a farmer. The family traces is roots back to Ireland. William raised dairy cows, had a dairy operation (but not a dairy processing plant), and grew soybeans, corn, wheat, alfalfa, etc. In 1973 the land was appropriated by the Canadian government to put through highway 401 and create a conservation area. On the land was a waterfall named Hilton Falls. The area is now named Hilton Falls Conservation Area.

The Mahons completely "picked up shop" and moved 2 hours west to their present location, where they started farming in 1973. In 1984 the family stopped raising animals. Presently the family grows mostly soybeans (non-GMO, but not organic) and occasionally wheat. They also contract with local farmers to grow a certain variety of soybean for them.

Starting in the early 1980s, Scott's father, Barry Mahon, had wanted to add value to the crops that they were growing. So on 25 March 1980 he had founded a food processing company named Hilton Whole Grain Millers Ltd.; the word "Hilton" came from the name of the falls and conservation area. But the business was largely inactive until the early 1990s when, on the family property, he built an oat processing plant and line to make specialized oat products, such as oat flakes–using a specific variety of oats which they grew and which a researcher had developed. The company made a superb oat product, but they had products marketing it, because buyers were always looking for the lowest price, even though the Mahon's was a far better quality product. It got to the point where they were having a very hard time competing with the big mills. So in 2006 they stopped making oat products–but they still get calls from consumers who claim that these were the best oat products they had ever tasted. "It was really tough." Most people don't realize that the buyers make the decisions as to what consumers get–the lowest-price products.

Scott graduated from the University of Waterloo in Canada with a mechanical engineering degree. In 1998, when he graduated, he decided not to take a job in Toronto working as a mechanical engineer, but rather to accept his father's offer to start developing soy products on the family farm. The first problem was to decide what to do. Scott (with his family decided) to developed toasted soy products that tasted really good. Most comparable products that he tasted were not very palatable. So they developed a line of toasted (dry roasted) whole soynuts, halves, chopped pieces (2 sizes), and gritty flour. In 1999 they started making and selling these five products as ingredients to food processors, not to retailers. The company still makes this line of soy products from the soybeans they grow on the family farm.

In 2003 the family started developing a line of soynut butters; but they did not start making and selling these until 2006. They tasted the products that were on the market and again decided that most were of poor quality. Scott recalls: "I couldn't eat it myself and I couldn't figure out what anyone else would want to eat it. And I like soy. So we decided we could do a far better job than what was available, and we started working on it." Scott found that the variety of soybean had a large influence on the taste and consistency (texture, nutritional composition) of the finished SoyButter. So he tested many varieties in order to get the best possible taste and other characteristics. The processing method is another key to good quality. "A few varieties give us what we want for flavor, but they don't work properly in our process. Most people couldn't imagine how important the variety is to the success of the finished product."

Scott also had an original marketing idea: To market the product to schools and other organizations that would not but peanut butter and, increasingly, would not allow it on the premises to reduce their financial liability from kids who were extremely allergic to peanuts and peanut butter. Many other makers of soynuts and soynut butter have a disclaimer on their labels with statements such as: "May contain traces of peanuts, tree nuts, or other nuts." Or: "Made on equipment shared with tree nuts and peanuts." Scott decided to make a much stronger claim: That their plant processes nothing but soy products, and that their products are guaranteed to be free of peanuts, tree nuts, etc.

"The company's SoyButter is doing well, and we are slowly starting to take market share to because people do recognize the superior taste of our product." They are going after several markets: (1) People who are not allergic to peanuts and who like peanut butter, but cannot eat it at school because of the banning. (2) The people who can't eat peanuts or peanut butter because of allergies, but who are looking for an alternative. About 90% of Hilton SoyButter is sold in retail jars. They have found that sales to food processors develop only after a new product is well established Scott has developed a generic private label / own brand retail product with a green label, named "Wow! Tastes Just Like Peanut Butter: School Safe SoyButter" (both creamy and chunky, launched Jan. 2009). They offer this as a generic private label for companies who don't want to take the time and money and minimum run to develop their own private label. The term "soynut butter" confuses people; you say you have a nut-free product but then you call it soynut butter. Many people have called to say that name "SoyButter" makes a lot more sense to them than "soynut butter." Most of what Hilton does is SoyButter is private label / co-packing. In Canada, they now co-pack two brands: "Salba Ole: SoyButter with Salba" (launched in the fall of 2008. Salba, also called chia, *Salvia hispanica,* is very rich in omega-3 fatty acids) and "FreeNut Butter: Totally Nutfree" (smooth) (the company's 1st such product, launched in about June 2006). In the USA, Wal-Mart sells their product as "SoyButter: Peanut Free Smooth" (launched June 2006). A&P sells their product labeled as "Smooth SoyButter: Healthy for Kids of All Ages" (launched March 2009). They sell private label smooth and chunky SoyButter to Hong Kong and China. For details see www.soybutter.com where-to-buy.html.

Hilton was in a partnership in Canada to try to market their first product, FreeNut SoyButter. The guy was supposed to be the marketing guru, but he basically failed to perform, so recently they have both decided to go their separate ways. Hilton has decided to promote its green

"Wow!" label more than its FreeNut label in Canada. Of the SoyButter, Hilton now has about 10 SKUs. They have more being developed that they plan to launch shortly. One is a private label portion cup for Ian's Natural Foods (a six-pack of 1½ oz. cups) where, for example, a mom could toss one in her kid's lunch.

Hilton has a foodservice partner, whom Scott met in 2006 or 2007. Scott was at an IFT [Institute of Food Technologists] regional table-top show in Chicago; he was exhibiting the SoyButter there for use as an ingredient in processed foods. A man came by, tasted the SoyButter, and said to Scott, "That's It! This is what I've been looking for for 25 years." He introduced himself as Herb Horn, and explained that in 1972 he had written his MSc thesis at the University of Illinois on "soybean butter." Herb owns a foodservice business named Clown-Gysin Brands in the United States (with a little in Canada' www.Clown-Gysin.com). Hilton signed an agreement with Herb giving him exclusive rights to foodservice in the USA and Canada. Now CGB SoyButter is available to foodservice in three package sizes: 1.1 lb (500 gm) jars, 22 lb pails, and ½ oz. ISP cups. Its going quite well. Hilton is getting new foodservice customers on a daily basis. "Herb is just ecstatic. He said he's never had a product where people are phoning him and demanding it."

Scott thinks there are three basic markets [channels] for his product: Retail, industrial [as an ingredient for food processors], and foodservice. SoyButter can replace peanut butter 1 to 1, which makes it easy to use as an ingredient. Scott has a customer that uses his SoyButter to make peanut-free Thai sauces.

Scott has found that the hardest part is trying to get people to taste the product. Their initial reaction is that they have tasted soynut butter before and they didn't like it. One of his brokers on the East Coast likes to say: "As long as I can get it into their mouth, they love it. I haven't had one person say a bad thing about the product once they taste it. But, it's so difficult to get them to try it!" Address: Hilton Soy Foods, Staffa, Ontario, Canada.

3070. *Ontario Soybean Growers' Update.*2009. Soybean, corn & wheat producers fund $1.16 million in research & innovation. March. p. 1.

• ***Summary:*** "Ontario's soybean, corn and wheat producers collectively funded fifty-eight research and innovation projects to the tune of $1.16 million in the past year. Research dollars invested by the Ontario Soybean Growers, Ontario Corn Producers and Ontario Wheat Producers leverage a significant amount of funding from both public and private sources. On average, every grower dollar invested generates four dollars from these sources, resulting in a total research investment of over four million dollars.

"'We've decided to shine a spotlight on the significant amount of agronomic, utilization, insect and disease research that is carried out each year by Ontario's grain farmers', says Crosby Devitt, Research & Innovation Manager for Ontario's soybean, corn and wheat producers. The fifty-eight projects are being featured at this week's soy, corn and wheat producers' Joint Conference in London, Ontario.

"'Farmers who grow soybeans, corn and wheat are really interested in the latest research being funded by their check-off dollars', added Alison Walden-Coleman, Research Projects Coordinator for the three organizations. 'We have created a special publication summarizing current research projects being done on growers' behalf. It's available in hard copy at the Joint Conference, or can be accessed through the Ontario soybean, corn and wheat websites. Our goal is to help better inform producers about how their research dollars are being spent'.

"Ontario Soybean Growers' current research investment totals $550,000, which has leveraged over $2,000,000 in Ontario soybean research. $350,000 of the OSG funding is spread over the twenty-six projects listed to the right; another $200,000 will help to fund new projects beginning in 2009.

"A call for research proposals for this additional $200,000 in OSG research funding was recently issued. For more information, contact Crosby Devitt: cdevitt@soybean.on.ca or Alison Walden-Coleman: alison.walden@ ontariowheatboard.com."

A photo shows the cover of the *2009 Research Projects Guide.*

A full-page table shows (for soybeans only): (1) Project type (soy agronomy, utilization, insect & disease control, combination projects). (2) Names of researcher(s). (3) Institution where research will be conducted. (4) Project title. For example: Development of high oil soybeans to improve the production efficiency of biodiesel. Development of industrial soy protein films. Development of soy protein isolates for the food industry from Ontario soybeans. Address: Guelph, ONT, Canada.

3071. *SoyaScan Notes.*2009. Soybean germplasm collections on the IPGRI website (Overview). May 6. Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** These four spreadsheet databases were sent to Soyinfo Center by Dr. Randall Nelson, curator, USDA Soybean Germplasm Collection, Urbana, Illinois. He created the databases (which reside only on his computer) using information found at the FAO website for germplasm collections: http://www.bioversityinternational.org / Information_Sources /Germplasm_Data bases / Germplasm_Collection_Directory /index.asp. At the "Biodiversity Directory of Germplasm Collections Query Form," after "Taxon" enter "Glycine max" then click "Search" at bottom of page. Wait for several minutes for results to be displayed.

(1) The 40 largest global *Glycine max* [domesticated soybean] germplasm collections–in descending order of no. of accessions in collection. (1) Institute of Crop Germplasm Resources (CAAS), China, 23,578 accessions. (2) Soybean Germplasm Collection, USDA, USA, 18,046. (3) Asian Vegetable Research and Development Centre (AVRDC), Taiwan, 12,508. (4) Nanjing Agricultural University, China, 10,000. (5) Institute of Agroecology and Biotechnology, Ukraine, 7,000. (6) N.I. Vavilov Research Institute of Plant Industry, Russia, 6,126. (7) Centro Nacional de Pesquisa de Recursos Geneticos e Biotec. (CENARGEN), Brazil, 4,693. (8) Soybean Research Institute Jilin Academy of Agric. Sciences, China, 4,200. (9) All India Coordinated Research Project on Soybean, Govind Bal. Pant Univ., India, 4,015. (10) Centro Nacional de Pesquisa de Soja (CNPSO), EMBRAPA, Brazil, 4,000. (11) Department of Genetic Resources I Nation. Inst. of Agrobiol. Resour. Japan, 3,741. (12) Crop Experiment Station Upland Crops Research Division, Korea, Republic of, 3,678. (13) Australian Tropical Crops Genetic Research Centre, Australia, 3,144. (14) Genebank, Inst. for Plant Genetics and Crop Plant Research (IPK), Germany, 3,063. (15) Regional Station, National Bureau of Plant Genetic Resources (NBPGR), India, 2,808. (16) Taiwan Agricultural Research Institute (TARI), Taiwan, 2,699. (17) National Research Centre for Soybean, India, 2,500. (18) Crop Breeding Institute DR & SS, Zimbabwe, 2,236. (19) Sukamandi Research Institute for Food Crops (SURIF), Indonesia 2,194. (20) Nanjing Agricultural University, China, 2,168. (21) Instituto Agronomico de Campinas (I.A.C.), Brazil, 2,000. (22) National Plant Genetic Resources Laboratory, IPB/UPLB, Philippines, 1,764. (23) CSIRO Division of Tropical Crops and Pastures, Australia, 1,600. (24) Genetic Resources Dep.–Research Inst. for Cereals and Ind. Crops, Romania, 1,600. (25) G.I.E. Amelioration Fourragere, France, 1,582. (26) Soyabean Research Institute, Heilongjian Academy of Agric. Sc., China, 1,558. (27) Institute of Oil Crops Research CAAS, China, 1,529. (28) Institute of Plant Breeding, College of Agriculture UPLB, Philippines, 1,508. (29) Instituto Nacional de Investig. Agricolas, Station de Iguala, Mexico, 1,500. (30) Stat. de Genetique et Amelioration des Plantes, INRA C.R. Montpellier, France, 1,404. (31) Kariwano Laboratory, Tohoku Nat. Agricultural Experiment Station, Japan, 1,400. (32) Int. Institute of Tropical Agric. (IITA), Nigeria, 1,358. (33) Centro de Investigacion La Selva, (CORPOICA), Colombia, 1,219. (34) Institute of Crop Breeding and Cultivation, CAAS, China, (1,200). (35) Institute for Field and Vegetable Crops, Yugoslavia, 1,200. (36) Institute of Industrial Crops Jiangsu Academy of Agric. Sciences, China, 1,199. (37) Corporacion Colombiana de Investigacion Agropecuaria, CORPOICA, Colombia, 1,170. (38) Genebank Cereal & Oil Crops Inst. Hebei Academy of Agric. Sciences, China, 1,154. (39) Instituto Nacional de Investigaciones Forestales, Agricolas y Pecuarias (INIFAP), Mexico, 1,124. (40) Maharashtra Association for the Cultivation of Science, India, 1,081.

(2) Germplasm collections (105) that have *G. max, G. soja*, advanced cultivars, breeding and inbred lines, cultivars, genetic stocks, introgressed forms, landrace or traditional cultivar, mutants, wild/weedy species, or unknown. Listed alphabetically by country: Albania 1 collection. Argentina 3. Australia 3. Bolivia 1. Brazil 5. Bulgaria 1. Canada 1. Chile 1. China 15. Colombia 2. Cuba 1. Czech Republic 1. Ecuador 1. France 6. Germany 1. Hungary 2. India 8. Indonesia 3. Japan 5. Korea, Rep 1. Madagascar 1. Mexico 2. Nepal 2. Nigeria 1. Papua New 1. Paraguay 1. Peru 1. Philippines 2. Poland 1. Romania 2. Rwanda 1. Slovakia 1. South Africa 1. Spain 1. Sri Lanka 1. Sweden 1. Switzerland 1. Taiwan 3. Thailand 4. Ukraine 4. Uruguay 1. Venezuela 1. Vietnam 4. Yugoslavia 1. Zambia 1. Zimbabwe 1.

(3) The 23 largest global *Glycine soja* [wild annual soybean] germplasm collections–in descending order of no. of accessions in collection. (1) Institute of Crop Germplasm Resources (CAAS), China, 6,172 accessions. (2) Soybean Germplasm Collection, USDA, USA, 1,114. (3) Soybean Research Institute Jilin Academy of Agric. Sciences, China, 600. (4) Soyabean Research Institute, Heilongjiang Academy of Agric. Sc., China, 400. (5) Crop Experiment Station Upland Crops Research Division, Korea, Republic of, 342. (6) Asian Vegetable Research and Development Centre (AVRDC), 339. (7) N.I. Vavilov Research Institute of Plant Industry, Russia, 310. (8) Breeding Laboratory, Faculty of Agriculture, Iwate University, Japan, 151. (9) CSIRO Division of Tropical Crops and Pastures, Australia, 60. (10) Taiwan Agricultural Research Institute (TARI) Taiwan, 46. (11) Hunan Academy of Agriculture Sciences, China, 45. (12) Tieling District Agricultural Research Institute, China, 29. (13) Department of Agronomy National Chung Hsing University, Taiwan, 20. (14) Eastern Cereal & Oilseed Research Centre, Saskatoon Research Centre, Saskatchewan, Canada, 18. (15) Soyabean Breeding Laboratory, Tokachi Agric. Exp. Station, Nemuro, Hokkaido, Japan, 15. (16) Instituto Nacional de Investigaciones Forestales, Agricolas y Pecuarias (INIFAP), Mexico, 9. (17) All India Coordinated Res. Project on Soybean, Govind Bal. Plant Univ., India, 7. (18) Maharashtra Association for the Cultivation of Science, India, 6. (19) Sukamandi Research Institute for Food Crops (SURIF), Indonesia, 4. (20) Research Institute for Food Crops Biotechnology–RIFCB, Indonesia, 4. (21) Kariwano Laboratory, Tohoku Nat. Agricultural Experiment Station, Japan, 3. (22) Genebank, Inst. for Plant Genetics and Crop Plant Research (IPK), Germany, 2. (23) S.K. University of Agriculture and Technology, India, 1.

(4) Germplasm collections that have at least one wild perennial relative of the soybean *(Glycine* species, such as

*Glycine clandestina),* in descending order of total number of accessions: (1) CSIRO Division of Plant Industry, Australia, 2,102. (2) USDA Soybean Germplasm Collection, USA, 919. (3) Plant Genetic Resources Unit, Agricultural Research Council, South Africa, 281. (4) CSIRO Division of Tropical Crops and Pastures, Australia, 87. (5) Asian Vegetable Research and Development Centre (AVDRC), Taiwan, 69. (6) N.I. Vavilov Research Institute of Plant Industry, Russia, 31. (7) Breeding Laboratory, Faculty of Agriculture, Iwate University, Japan, 23. (8) National Dept. of Agriculture, Dir. of Plant and Quality Control, South Africa, 23. (9) Seed Bank, Seed Conservation Sect. Royal Botanic Gardens, Kew, UK, 1.

3072. Chapman, Sasha. 2009. The new gourmets: They're ordering octopus, having *Iron Chef*-themed birthday parties and learning their multiplication tables with edamame. Gastro-kids are the latest parental status symbol. *Toronto Life (Ontario, Canada)* 43(5):89. May.
• ***Summary:*** Describes how North American kids are dining out more often than in previous decades and are therefore exposed to more worldly, sophisticated cuisines. For instance, "While my father likes to recall the first time he tasted yogurt–when he moved to Paris in his 20s–these kids are learning their multiplication tables with edamame."

3073. *Soyfoods Canada Newsletter.*2009. Canadian soybeans–a sustainable crop. Spring. p. 4.
• ***Summary:*** "Canada accounts for almost 2% of the world's soybean production. In 2007, approximately 2,700,000 tonnes [metric tons] were produced in Canada, on 2,870,657 acres (1,161,755 hectares). Soybeans are grown in three provinces: 215,006 acres in Manitoba, 434,715 acres in Quebec, and 2,224,936 acres in Ontario.

"Canadian soybean producers are known for innovative and sustainable production practices... Canada's soybean industry is known for its superior ability to segregate and trace soybean crops from seed through to end user, referred to as Identity Preservation (IP).

"Over 40%, or about 1.7 million tonnes of Canadian-grown soybeans are exported to markets such as Japan, Malaysia, Singapore, Hong Kong and Taiwan. They are used to make Asian food staples such as tofu, miso, natto, and soymilk. Japan only produces about 12% of its own country's food grade soybean requirements, and their consumers demand non-genetically modified product. Japanese buyers value Canadian soybeans because of our industry's IP ability.

"Growing soybeans leaves a relatively small carbon footprint. As a legume, the soybean plant's ability to 'fix' its own nitrogen virtually eliminates the need for petroleum-based nitrogen fertilizer. The wide canopy of leaves formed by soybean plants helps to minimize the need for herbicide sprays."

3074. Wiley, Mary. 2009. OSG and Quality Homes partner to create Soy House! *Ontario Soybean Growers' Update.* June. p. 1.
• ***Summary:*** "Imagine stepping into a house that symbolizes the power of Ontario's emerging bio-economy. Featured in the heart of the 2009 Royal Agricultural Winter Fair (RAWF) will be a special house made and furnished with as many soy-based products as possible. The Ontario Soybean Growers have partnered with Quality Homes to create the Soy House!

"OSG's main priority is market development of the 101+ Uses of Soy. The goal is to add value to Ontario's soybean crop, and capture that value within the Ontario economy, by identifying specific end uses for soy components. For example, soybeans are a good source of renewable polyol that can replace the petroleum content in a wide range of products.

"OSG hosted a symposium in December 2008 at the Toronto Stock Exchange to highlight the use of soy in many commercial, industrial, residential and personal products such as sofas, mattresses, bedding, car parts, clothing, food, and health and beauty products. The goal was to illuminate for media and Queen's Park representatives the important role Ontario-grown soybeans will play in capturing value-added opportunities for renewable crops grown in this province.

"The symposium highlighted various room vignettes made from soy-based products: soy lubricants, engine oils, and car parts in the garage; no-VOC (volatile organic compound) paints on the walls; soy foam furniture, mattresses, pillows and candles in the living and bedroom areas. Soy soaps and skin care products as well as a wide variety of soy food and beverage products were also featured.

"From that original symposium came the idea to raise awareness of the 101+ Uses of Soy by building a Soy House! With 326,000 urban and rural visitors seeking an educational experience, the RAWF was chosen as the perfect base for the house.

"OSG partnered with Quality Homes (www.qualityhomes.ca) to display the house. The home will be built in Quality's climate controlled production facility in Kenilworth. This type of building means construction materials and trades are always protected from the effects of harsh weather, which means homes are delivered straight, true and are guaranteed on-time.

"Visitors to the RAWF will be able to tour the 1200 square foot house, and learn about the companies producing the soy-based products which comprise the house and its contents. Through this process, they will become familiar with the long-term health, environmental and economic benefits of Ontario soybeans.

"Set the dates for the 2009 Royal on your calendar now: November 5 to 16, at the Direct Energy Centre, Exhibition Place, Toronto. While you're there, be sure to visit OSG's Soy House!"

A large photo shows an interior view of the Soy House. "Soy-based furniture, cushions, carpet backing, candles and low-VOC paints are just some of the 101+ Uses of Soy that will be featured in the OSG-Quality Homes Soy House!" Address: OSG Communications Director, Guelph, ONT, Canada.

3075. **Product Name:** It's All Good [Meat-Free Tuscan Breasts in a Tomato and Basil Sauce, Meat-Free Chicken-Style Filets].
**Manufacturer's Name:** Garden Protein International Inc.
**Manufacturer's Address:** 12751 Bathgate Way, Richmond (near Vancouver), BC V6V 1Y5, Canada. Phone: 604-278-7300.
**Date of Introduction:** 2009. July.
**Ingredients:** Tuscan Breasts: Water, soy protein*, vital wheat gluten, ancient grains (quinoa, amaranth, millet, kamut), natural flavors (from plant sources), gum, potato starch, expeller pressed canola and/or safflower oil, pea protein, modified vegetable gum, carrot fiber, organic beet root fiber, organic evaporated cane juice, yeast extract, vinegar, sea salt. Marinade: Water, tomato paste, spices, red bell pepper flakes, vinegar, citric acid. Contains Soy and Wheat. * = Non-genetically engineered soybeans.
**Wt/Vol., Packaging, Price:** 7 oz (200 gm). Paperboard box. Retails two for $6.00 (2009/07. Lafayette, California).
**How Stored:** Refrigerated.
**New Product–Documentation:** Product with label purchased at Safeway in Lafayette, California. 2009. July 24. Paperboard box. 6½ by 6½ by 1¼ inches. Green, red and black on white. A color photo on the front panel shows each of the products on a white background. At bottom of front panel is an innovative horizontal table: Protein 11 gm. Fat: 1.5 gm. Cholesterol: 0. Calories: 70. Carbs: 3 gm. On all four panels is the logo of Garden Protein International Inc. "Made with Gardein. Garden protein." On one side panel: "Low fat. No artificial flavors, colors or preservatives. A good source of protein. And suitable for vegans and meat lovers alike." Manufactured for Its All Good Foods, Inc., Richmond, V6V 1Y5 Canada. www.itsallgoodfoods.com. Made in Canada, On the other side panel: "Microwave. Stovetop. Grill. Bake. Good with rice, couscous, pasta." On the bottom panel: "There are lots of good things growing at www.gardein.com." On the back panel are Nutrition Facts, ingredients list and recipe ideas.

3076. *Ontario Soybean Growers' Update.*2009. Record 2.4 million Ontario acres seeded to soybeans. July. p. 1.
• ***Summary:*** "Statistics Canada's 2009 June Farm Survey showed Ontario's seeded soybean acres had risen 14.3% over 2008, to reach a new high of 2.4 million acres. The 2008 figure was 2.1 million acres. The previous record set was 2.3 million acres planted in 2004. The survey of 5,039 Ontario farmers was taken between May 25th and June 3rd; at that time, seeding across the province was over 87% complete." Address: OSG Communications Director, Guelph, ONT, Canada.

3077. Ontario Soybean Growers. 2009. OSG marks 60th anniversary by announcing legacy award (News release). Guelph, Ontario, Canada: OSG. 1 p. Aug. 20.
• ***Summary:*** "London, Ontario. The Ontario Soybean Growers marked their 60th Anniversary by creating a fifteen thousand dollar OSG Graduate Student Legacy Award. Over the next ten years, an annual award of fifteen hundred dollars will be presented to one graduate student per year, in support of research providing value to the Ontario Soybean Industry.

"The award announcement was made today by OSG Chairman Leo Guilbeault at a special event held in London, Ontario, to recognize past Directors and Chairmen of the OSG Board for their contribution to the industry. Upon announcing the award, he said, 'Since OSG was formed in 1949 by foresighted farmers, our Board has been committed to seeing Ontario's soybean industry grow and prosper. We created this Legacy Award in recognition of the vital role that research, innovation and market development play in driving sustainability back to soybean growers' family farms.'

"Chairman Guilbeault also noted that the OSG's proud history and commitment to building a sustainable future for Ontario's soybean industry will be carried forward into the new Grain Farmers of Ontario (GFO) organization. Later this year, OSG will be merging with Ontario's corn and wheat producers' groups to form the GFO, one provincial association representing the interests of Ontario's grains and oilseeds farmers.

"Since 1949, the number of soybean growers in Ontario has grown from 6,000 to 23,000, and the growing area for this crop has spread across the province. This expansion is largely due to the work of public researchers, who developed soybean varieties specifically for Ontario. Today, soybeans are grown on nearly half of Ontario's farmed acreage. In 2008, the farm gate value of Ontario's soybean crop was over $800 million, with the value-added figure for the crop approaching $1 billion.

"In 2009, Ontario's 2.4 million acres of soybeans are projected to yield approximately 1.1 metric tons (MT) per acre. Over 30% of Ontario's soybeans are exported to Asian markets, with the balance going to animal feed, soy food and beverage processing, and industrial uses such as soy-based polyols, which are increasingly replacing petroleum-based content in a wide range of products including plastics, foams and lubricants."

For more information contact: "Dale Petrie, OSG General Manager (cell) 519-993-7692; dpetrie@soybean.on.ca." Address: Ontario AgriCentre, Suite 201, 100 Stone Rd. W., Guelph, Ontario CANADA, N1G 5L3. Phone: 519-767-1744.

3078. Daller, Frank. 2009. Chronology of work with soy and Malnutrition Matters worldwide, especially soymilk and development of the VitaGoat (Interview). *SoyaScan Notes.* Aug. 31. Conducted by William Shurtleff of Soyinfo Center.
• ***Summary:*** 1951–Born in Bavaria, Germany.

1956–Emigrated to Toronto, Canada.

1989–Began occasional volunteer work with Child Haven International, a Canadian charity active in India.

1991–Introduced to Raj Gupta by Child Haven, which was considering doing a trial with SoyaCows at their children's homes in India.

1991–Saw first prototype of SoyaCow at Raj Gupta's house. He was then working as a research scientist with the Canadian government and moonlighting on soymilk processing with Grant Wood, a technologist also with the Canadian government.

1992–Moved to Ottawa and invested some money in ProSoya Inc. and began working as vice-president to complete technology development and begin commercial phase of operations.

1993–First beta models of SoyaCow–made in Canada sent for field trials at Child Haven homes in India.

1993-94–Began to develop technology transfers with Indian company SSP and Russian company ASSOY. Gives equipment design and know-how to foreign partner to make equipment for ProSoya and for the partner to sell (in their own country) after paying a royalty to a local NGO (Child Haven in India).

1993–ProSoya continued development of larger systems including continuous process soymilk plants.

1994–Became President of ProSoya Inc.

1997–Resigned and sold my shares in ProSoya Inc.

2000–Founded non-profit organization Malnutrition Matters (MM) with partner Brian Harrigan. Objective was to develop small-scale food processing systems including soy, for developing countries. By this time, ProSoya had almost stopped promoting SoyaCow etc. since the business was too small compared to larger commercial systems.

2001-03–MM developed VitaGoat system for non-electric production of soymilk and other foods.

2003–First three "beta" models of VitaGoat, built in Canada, were delivered to Africare projects in Guinea, Chad, and Mozambique.

2005–Transferred VitaGoat technology to G.D. Machines in India.

2007–Brian Harrigan left MM to work with Africare in Zambia for two years.

2007–MM won a Laureate Award from the Tech Museum of Innovation in San Jose [Silicon Valley], California. It was an honor without money.

2007–Alpro, N.V. of Belgium began sponsoring the VitaGoat. [Philippe Vandemoortele introduced Frank to Alpro after Philippe had ceased to be active in Alpro].

2008–MM Won World Bank Development Marketplace competition [project design with local partner] for VitaGoat school feeding project in Orisssa, India. With the funds from winning, MM developed the project in India.

2008–Developed new lower-cost version of SoyaCow (named SoyCow) with separate electric grinder and pressure cooker and lower cost press, and with option of multi-fuel boiler used by all VitaGoat systems. [Note: Raj Gupta had not used the name SoyaCow for years].

2009 Aug.–Currently there are over 90 VitaGoats in operation worldwide. The greatest number [about 40] are in Africa, followed by South Asia and North Korea. Others in Thailand and Brazil, plus demo systems in–Europe, U.S. and Canada.

With each system that is installed, the cost of the equipment, shipping, installation and training fees are provided (as a commercial transaction) by a partner organization–typically a non-governmental organization (NGO) or a government sponsored organization–but rarely an individual businessperson.

For more details see the very interesting Malnutrition Matters website at www.malnutrition.org Address: Founder, Malnutrition Matters, 498 Rivershore Crescent, Ottawa, ON K1J 7Y7, Canada. Phone: 613-742-6888.

3079. Joe, Peter. 2009. Message from the president. *Soyfoods Canada Newsletter.* Summer. p. 3.
• ***Summary:*** "In April, Soyfoods Month, we sampled soy food products at the Good Food Festival in Toronto, which is attended by almost 30,000 consumers. We also sent an April mailing to more than 700 Dietitians." A oval portrait photo shows Peter Joe, looking very happy. Address: Sunrise Soya Foods, 729 Powell St., Vancouver, BC V6A 1H5.

3080. Grain Farmers of Ontario. 2009. Grain Farmers of Ontario brand identity unveiled (News release). Guelph, Ontario, Canada: GFO. 1 p. Sept. 1.
• ***Summary:*** "Ingersoll, Ontario–Ontario's newest farm commodity group, Grain Farmers of Ontario (GFO), unveiled its brand identity in the Woodstock area today. The launch was marked by a special gathering of Delegates and Committee Members from its three founding groups–the Ontario Corn Producers' Association, Ontario Soybean Growers, and the Ontario Wheat Producers' Marketing Board.

"The farmers attending today's event represent the 28,000 Ontario corn, soybean and wheat farmers who

comprise the new Grain Farmers of Ontario organization. The crops they grow generate over $2.5 billion in farm gate receipts."

Contact: Barry Senft, CEO–1-800-265-0550 Mary Wiley, Communications–519-993-2070; mwiley@soybean.on.ca. Website: www.gfo.ca.

Question from Soyinfo Center: Does this means that the Ontario Soybean Growers will longer exist as a separate organization, but will be (or has been) merged into GFO? In short, is this the beginning of the end of OSG?

Mary Wiley replies: "The merger is a work in progress. All three founding organizations still exist and will operate in parallel to the new GFO until such time as the new legislation that empowers the GFO is in place, and the legislation for the three existing organizations is wound down."

Talk with Darci Wheeler, receptionist, Ontario Soybean Growers. 2009. Oct. 14. On Sept. 1 she changed the way she answered the phone, from "Ontario Soybean Growers" to "Grain Farmers of Ontario." Address: Ontario AgriCentre, Suite 201, 100 Stone Rd. W., Guelph, Ontario CANADA, N1G 5L3.

3081. *Ontario Soybean Growers' Update.*2009. Canadian soybeans promoted at World Soybean Research Conference in China. Sept. p. 1.

• ***Summary:*** "Two thousand delegates from fifty countries attended the World Soybean Research Conference (WSRC) held in Beijing in August. It is a soybean-specific research conference held once every five years. Twenty-five Canadian soybean researchers, graduate students, government and industry representatives attended this year's event.

"The Canadian Soybean Council (CSC) was invited to speak at the conference about Canada's experience with growing and supplying identity preserved soybeans. The presentation covered global demand for IP crops and the realities of production in a commodity-driven world.

"CSC worked with the Canadian International Grains Institute and Agriculture & Agri-Food Canada (AAFC) to organize a "Canadian Soybeans" booth at the conference trade show. Canada's Quality; Canada's Experience; and Canada's Expertise was the booth theme. It was designed to raise awareness of Canada's capabilities across the value chain to produce and supply quality soybeans to world markets." "Canadian researchers play an active role in organizing the WSRC. Gary Ablett from the University of Guelph (Ridgetown Campus) and Lorna Woodrow from AAFC in Harrow are part of the conference team. The next WSRC will be held in South Africa in 2014." Address: Guelph, ONT, Canada.

3082. Pipe, Elizabeth A.; Gobert, C.P.; Capes, S.E.; Darlington, G.A.; Lampe, J.W.; Duncan, A.M. 2009. Soy protein reduces serum LDL cholesterol, LDL cholesterol:HDL cholesterol and apolipoprotein B:apolipoprotein A-I ratios in adults with type 2 diabetes. *J. of Nutrition* 139(9):1700-06. Sept.

• ***Summary:*** Consumption of soy protein isolate "can modulate some serum lipids in a direction beneficial for cardiovascular disease (CVD) risk in adults with type 2 diabetes." Address: Dep. of Human Health and Nutritional Sciences, Univ. of Guelph, Guelph, Ontario, Canada.

3083. Petrie, Dale. 2009. Big changes at Ontario Soybean Growers (OSG) in Canada (Interview). *SoyaScan Notes.* Oct. 16. Conducted by William Shurtleff of Soyinfo Center.

• ***Summary:*** OSG (Ontario's trade association for soybean producers) is now in the process of merging with the Ontario's Corn Producers Association (OCPA) and the Ontario Wheat Producers' Marketing Board (OWPMB) groups to form the Grain Farmers of Ontario (GFO), one provincial association representing the interests of Ontario's grains and oilseeds farmers.

On 29 April 2004 OSG moved from Chatham to Guelph, to Suite 205, Second Floor, Research Park Center, 150 Research Lane.

Then on 30 Sept. 2005 (17 months later) all three groups relocated to the new building of the Ontario AgriCentre, 100 Stone Road West, Guelph, Ontario, where they were able to increase efficiencies by sharing office space there with OCPA and OWPMB.

Shortly before the move, a memorandum of understanding (MOU) was signed between the three commodity organizations stating that they would eventually join forces and become a new organization named Grain Farmers of Ontario (GFO). All three organizations and their crops were strong and in good shape at the time; they did not merge out of weakness or because of a problem. They will have a new website, a new magazine, etc. A lot of the staffing and operational activities are underway, but the actual legislation (from the Farm Products Marketing Commission) which gives GFO the power to collect license fees (somewhat like a tax collection, and somewhat like the U.S. checkoff situation) has not yet been enacted. GFO expects that this will become law in about December 1 of this year. On that date, the three will become one. Some aspects of the legislation are presently being negotiated. There are many important details that must be in the new regulations. Very little will be changed from existing powers. There are no new requests for government money or subsidies.

Why did the three groups decide to merge? First, they have the same grower base. Out of the 28,000 farmers across the province of Ontario, about 23,000 grow soybeans, 21,000 grow corn, and about 16,000 to 17,000 grow wheat. Typically they grow all three in rotation or at least two in rotation (corn and soy, or soy and wheat). In the

same geography, there used to be 45,000 farmers. Due to consolidation, the farms have become much larger. So the actual acreage of this 5 million acres of farmland has changed very much. A small percentage of the farmland has been lost as Toronto expands. Moreover, politically, when a farm group goes to the government "for an ask," they always say something like, "Well, what does corn think?" So then you have to go back to the corn (or wheat) growers for consultation. "So in the near future, when GFO knocks on the door with a unified voice, they certainly will listen even more. And we will represent more farmers and more potential voters."

One organization (GFO) made sense to farmers for many reasons. Things started to develop from the ground up. For example, instead of going to three farmer meetings (for soybeans, corn, and wheat), farmers started to consolidate the three into one joint farmer meeting.

In short, the focus has shift from the three individual crops to farmers in Ontario province. Farm organizations and farmers in other provinces of Canada are watching the formation and development of GFO with great interest. There are also some economies of scale that will be helpful–for example one receptionist, one set of photocopiers, one IP system, one computer system, one magazine, one newsletter, one letterhead, one set of lawyers–the savings add up fast.

GFO will have one board of directors composed of 15 farmers representing each of the 15 new districts into which Ontario has been divided by GFO to get fair member representation. "The soybean model (OSG) is probably the closest to what the new organization will look like in structure. Each of the 15 districts will carry a minimum of 8 delegates. So 8 x 15 = 120 delegates minimum. The district is divided by 6.7% of the production.

"We have 30 delegates which are somewhat transferable depending on production by district. Some of the counties [especially those near the southern tip of Ontario] produce more than 6.7% of production, so we can add more delegates from the pool of 30 delegates to those high-production counties. For example, Lambton county has 17 delegates–the most. Middlesex has 14, etc. This system gives a better representation by total production of soybeans, corn and wheat. In fact, the representation tends to be very close to the soybean production because soybeans tend to be the common denominator in any rotation. The producer delegates are elected by their peers to represent the concerns and wishes of all three crops." So the total number of delegates will be exactly 150, and average of 10 per district. From those delegates they choose one director, who will sit on the new board of 15 producers which will be formed in Feb. or March 2010. One member of the board will be chair, one will be vice-chair a total of four executives. In addition, a CEO, Barry Senft, has been hired; he will be Dale's Boss when this all gets enacted. For GFO, Dale will be director of strategic planning and innovation–everything outside the organization including government relations, market development, research or communications. Ryan Brown, who is currently head (general manager) of the Ontario Corn Producers Association, will take care of all things that are inside the organization, including wheat trading, accounts receivable, accounts payable, etc.

About 35% of these three commodities are marketed as "identity preserved" (IP). In Ontario, corn is predominantly genetically engineered (GE); soybeans are 65% GE and no wheat is GE. There is some interest in GE wheat, not for weed control but for control of disease (especially Fusarium head blight), or in nutritional composition, or in milling quality.

Ontario Soybean Growers (OSG) still has its own website and has continued to publish an 8-page (usually) color monthly (or occasionally bi-monthly) newsletter. All of these since Feb. 2001 are archived on the OSG website: On the top bar click "OSG info" then click "Newsletter." They also have a monthly newsletter that goes into one of the widely read farm publications, a tabloid-size newspaper named the *Ontario Farmer,* but it doesn't get mailed since the mailing costs were too high.

Bottom line is: A new printed magazine (to be sent by mail to 28,000 farmers plus 2,000 other stakeholders, industry and media people) will soon be available, titled *Ontario Grain Farmer* (Kim will send), which will include all important news about soybeans. A PDF version of the magazine will also be available on the new OGF website.

Looking at the big picture and the future of soybeans in Ontario and Canada, Dale thinks that the future looks good and promising. Acreage and yields continue to rise. The key to expanding acreage (this year is a record of 2.4 million acres) is the better, earlier varieties, which replace barley, edible beans, canola, etc. and are grown further northward. They have a yield contest to highlight the growers who are getting the best yields. "Canada hasn't gotten to the biodiesel business because the economics of using soybean oil for biodiesel has always been suspect." Moreover, it is basically turning one commodity into another. OSG is more interested in adding value by transforming soybean oil into high-value industrial uses, such as lubricants, greases, special time-release coatings on pharmaceutical products, cosmetics, foods, etc. Value-added products have long been Dale's major focus. OCS was the founding supporter in a research organization at Trent University, studying higher value applications and products. Dale believes that Canada has an advantage over its soybean competitors because of its excellent IP (identity preserved) infrastructure. IP is one important key to adding value and getting away from selling commodity soybeans, oil, or meal. Canada is too small to compete in a straight commodity world market.


Why do Canadians grow Roundup-Ready or other GE soybeans. Above all for the weed control of many annual and perennial weeds found in Canada. "Its so easy. You just plant GE soybeans, let the weeds grow, zap them with 1 liter / quart per acre of Roundup herbicide, you park and you're done. You don't have to worry about going back onto the field. And there is less stress on the farmer. Also, it dramatically reduces the weeds in fields for the next crop grown on that field. As in the USA, weeds always develop resistance. But to minimize this, for that past ten years in Ontario they have been very strict about avoiding continuous use of Roundup herbicide on the same field; they preach this important message year after year.

In short, the past 20 years have been good for soybeans in Ontario and the future looks bright, in part because of the new organization, Grain Farmers of Ontario. Address: OSG General Manager, Ontario AgriCentre, Suite 201, 100 Stone Rd. W., Guelph, Ontario CANADA, N1G 5L3. Phone: 519-993-7692.

3084. Grain Farmers of Ontario; Ontario Soybean Growers. 2009. Ontario 2008 soybean area and production by county. Guelph, Ontario, Canada: GFO. 2 p. Unpublished typescript.
• ***Summary:*** Almost 75% of Canada's soybeans are grown in one province: Ontario–which produced 91.0 million bushels in 2008.

Ontario is divided into five groups of counties for purposes of soybean production statistics: Southern Ontario (55.49% of total Ontario soybean production in 2008), Western Ontario (26.72%), Central Ontario (6.74%), Eastern Ontario (10.97%), and Northern Ontario (0.07%). More than half of all of Ontario's soybeans are grown in Southern Ontario, largely because its southern tip it extends much further southwards than any other part of Canada.

In Southern Ontario, the counties with the largest soybean production in 2008 were (in million bushels): (1) Lambton 10.719. (2) Middlesex 7.433. (3) Chatham-Kent 7.383. (4) Essex 6.255. (5) Haldimand-Norfolk 6.226.

To view the location of these counties, please see map at front of this book. Address: 100 Stone Road West, Suite 201 Guelph, ON N1G 5L3, Canada. Phone: 1-800-265-0550.

3085. *Ontario Grain Farmer.*2009. Serial/periodical. Guelph, Ontario, Canada: Grain Farmers of Ontario. Vol. 1, No. 1: Oct. 2009.
• ***Summary:*** News and information that was formerly found in the *Ontario Soybean Growers' Marketing Board Newsletter* (1989-1999) and later in the *Ontario Soybean Growers Newsletter* (2000-2003) will now be found in this magazine.

The first issue (38 pages), which is full color on semi-gloss paper, is published by the new trade association representing soybeans, corn, and wheat in Ontario. Address: Grain Farmers of Ontario, 100 Stone Rd. West, Suite 201, Guelph, ON N1G 53L, Canada. Phone: 1-800-265-0550.

3086. *Ontario Grain Farmer.*2009. Continuing the push: To bring the message forward, we need all hands on deck (Editorial). 1(1):4. Oct.
• ***Summary:*** "It is estimated by some that agriculture could once again become the number one industry in Ontario." The hard work and innovation by soybean, corn, and wheat growers in Ontario "brings in nearly $3 billion a year worth of food and biofuel products to Ontario..."

On the provincial level, OGF's main public policy objective is "permanent implementation of the Risk Management Program (RMP)."

"As we all know, we have lurched from income crisis to income crisis in Canadian agriculture and, historically, federal agricultural programming has been ineffective and slow to respond. The data shows that not only does ad-hoc aid show up too little, too late, and often into the wrong pockets, but that it is also far more expensive for governments than a shared-cost, shared-risk program like the Risk Management Program (RMP)." Address: Grain Farmers of Ontario, 100 Stone Rd. West, Suite 201, Guelph, ON N1G 53L, Canada.

3087. *Ontario Grain Farmer.*2009. Farmer representation. 1(1):20. Oct.
• ***Summary:*** Describes in detail how farmers will choose their representatives to the new trade organization, Grain Farmers of Ontario, representing soybean, corn, and wheat farmers. A color map shows the 15 districts into which Ontario has been divided. A color table shows the exact number of delegates / representatives allotted to each district, based in part on production of these three main crops.

An organizational chart shows the structure of GFO: From top to bottom (line by line): (1) Producers [growers / farmers]. (2) 150 voting delegates. (3) Board of directors (15 directors). Board executive. (4) Wheat trading advisory. Market development. Research and innovation. Government relations. Communications. Finance & audit. (5) Wheat issues subcommittee. Corn issues subcommittee. Soybean issues subcommittee. Resolutions subcommittee.

Contents: Introduction. How to get involved in GFO. Media training (to help farmers feel more comfortable talking to the media). Charting a new course for AGCare (which was formed 20 years ago when Ontario crop and horticulture farmers banded together in support of responsible pesticide use in agriculture). Agricorp update. Address: Grain Farmers of Ontario, Guelph, ON N1G 53L, Canada.

3088. *Ontario Soybean Growers' Update.*2009. Soyfoods Canada: Soy for life. Oct. p. 1.
• ***Summary:*** "'Healthy eating is easy with soy', says Dr. Brian Wansink of Cornell University, commenting on the fact that 85 per cent of Canadian families are becoming more health-conscious when it comes to their eating habits. 'The great nutrition, enhanced flavors and variety of today's soy foods and beverages make them an excellent solution for time-strapped, busy families.' Dr. Wansink, of Cornell's Food & Brand Lab, was the keynote speaker at Soyfoods Canada's October 5th Soy Symposium.

"A recent Angus-Reid online poll found that almost half of the respondents agree that soy represents an essential part of a healthy and balanced diet. Fifty-nine per cent of Canadians said the main reason they eat soy is because it is part of a healthy diet, while 26 per cent said they just don't know how to cook with soy products.

"Soyfoods Canada's new Soy for Life campaign will re-introduce Canadians to the benefits of soy and soy products. 'We have listened to Canadians. The Soy for Life campaign is about our member companies coming together

to educate Canadians about how far soy has come,' says Todd Hoffman, vice-president, Soyfoods Canada. 'From soy based beverages, to meat substitutes, to baked goods made with soy, there is something for everyone. If it's been a while since you've tried cooking with soy–you're definitely in for a treat.'

"In a study published recently in the Journal of Nutrition and conducted by researchers at the University of Guelph, soy protein was found to lower risk of heart disease in Type 2 diabetics. Soy protein reduces serum LDL–so-called 'bad' cholesterol–in adults with Type 2 diabetes who are managing their disease by controlling their diets rather than with medication. 'It is encouraging to show that it is possible to control one of the major risk factors by using soy as a dietary preventative strategy,' says Dr. Alison Duncan, a professor in the Department of Human Health and Nutritional Science." Address: Guelph, ONT, Canada.

3089. *Ontario Soybean Growers' Update.*2009. Soybean Rust coalition monitoring Kudzu. Oct. p. 1.
• ***Summary:*** "Ontario's first detection of the invasive Kudzu plant, near Leamington, will probably not increase Ontario's risk of Soybean Rust, according to Albert Tenuta, OMAFRA Field Crop Plant Pathologist at Ridgetown. 'The soybean rust fungus requires a living host to survive, and will not produce spores on dead plant material, whether that is soybeans or Kudzu', notes Tenuta. 'Kudzu is sensitive to below freezing temperatures and just about the time we bring out the winter coat, Kudzu plants will defoliate, or drop their leaves.'" Address: Guelph, ONT, Canada.

3090. Statistics Canada, Agricultural Division. 2009. September estimate of production of principal field crops. *Field Crop Reporting Series* 88(7):1-68. Oct. Catalogue no. 22-002-X.
• ***Summary:*** Table 4 (p. 20) is titled "Estimate of the 2008 production of principal field crops–Imperial." For each of the 11 crops is given area seeded, area harvested (1,000 acres), yield (bu/acre), and production (1,000 bushels).

The following figures are for soybean production only:

Total Canada for 2008: 122,576 (i.e., 122.5 million bushels).

Ontario: 91,000 (74.2%).

Quebec: 22,046 (18.0%).

Manitoba: 8,900 (7.3%)

Prince Edward Island: 630 (0.5%). Address: Canada.

3091. Duncan, Allison M. 2009. Soy improves heart disease risk in adults with type 2 diabetes: Report from a University of Guelph nutrition study. *Soyfoods Canada Newsletter.* Fall. p. 1-2.
• ***Summary:*** "Diabetes has become an epidemic in our society with alarming numbers; for example, 246 million people are affected by diabetes worldwide and one in every three children born in North America in the year 2000 will be diagnosed with diabetes in their lifetime (1). The economic burden of diabetes is also alarming with an estimated 2010 cost of greater than $15 billion per year for the Canadian health care system (1). Type 2 diabetes is the most common type of diabetes affecting 90% of those with diabetes with its high rates particularly influenced by unhealthy lifestyles including poor diet and low physical activity (1)."

Canadian Diabetes Association, http://www.diabetes.ca; accessed September 15, 2009.

(1) Pipe EA, Gobert CP, Capes SE, Darlington GA, Lampe JW, Duncan AM. Soy protein reduces serum LDL cholesterol, LDL cholesterol/HDL cholesterol and apolipoprotein B/apolipoprotein A-I in adults with type 2 diabetes. *J. of Nutrition.* 2009; 139:1700-6. Address: Ph.D., R.D., Assoc. Prof., Dep. of Human Health and Nutritional Sciences, Univ. of Guelph.

3092. Hain Celestial Group, Inc. (The). 2009. Annual report 2009. Melville, New York. 60 p. Nov. 9. 28 cm.
• ***Summary:*** Begins with an 6-page question and answer session with Irwin Simon, the CEO. Net sales for the year ended 30 June 2009 were $1,135,306, up 7.5% from 2008. Net income in 2009 was a loss of $24.723, a dramatic decrease from the profit of $41.221 million in 2008. There were no acquisitions or disposals of companies during fiscal 2009.

Accompanying the annual report is a "Notice of Annual Meeting of Stockholders and Proxy Statement" (71 p.). Irwin Simon, the founder and CEO, is age 51. Address: 58 South Service Road, Melville, New York 11747-2342. Phone: 631-730-2200.

3093. Schaer, Lilian. 2009. Bio-based lubricants: Building a market that's good for farmers, good for the environment. *Ontario Grain Farmer* 1(2):10-12. Nov.
• ***Summary:*** One market "that is growing rapidly is that of bio-based lubricants and industrial fluids, which are made using soybean oil. This includes everything from hydraulic and transmission fluids to greases, motor oils, fuel additives and even a WD-40-like product," made by companies such as Renewable Lubricants of Ohio.

All lubricants are now available made from bio-based ingredients. Large color photos show: (1) Plastic bottles containing two different types of renewable lubricants. One, "Bio-Plus," is a an injector cleaner and gas conditioner. It is said to improve fuel efficiency and reduce emissions. (2) A field of dry soybeans, with several plants with dry pods shown up close.

3094. Wiley, Mary. 2009. Soy science takes off: Common goals make Trent biomaterials research program a reality. *Ontario Grain Farmer* 1(2):16-17. Nov.

• ***Summary:*** "Ontario Grain Farmers have reason to celebrate as the Biomaterials Research Laboratory is officially opened at Trent University. The centre, which will focus on utilization of the natural oils found in oilseed crops like soybeans, will be a crown jewel in Trent's Centre of Knowledge in the Environment."

Ontario soybean growers are a founding partner. The focus will be to develop new food products and environmentally friendly products to replace those presently manufactured from petroleum.

Phase one of the 1,500 square foot laboratory at Trent has been completed. Plans are in progress for Phase two, which will be a 1,500 square foot expansion in 2010.

"To make the laboratory work, Trent has recruited Dr. Suresh Narine and a team of seven scientists from the University of Alberta." Narine is "a global pioneer and leading scientist" in the field of commercial lipid utilization in the development of new food and industrial products.

A photo shows Narine and three members of his team in the laboratory.

3095. Grain Farmers of Ontario. 2009. Welcome (Website printout, part). http://www.gfo.ca/. 1 p. Printed Dec. 11.
• ***Summary:*** Contents: Top row: Home. About us. Login. Site map. Contact us.

Middle row: Marketing. Production. Research and innovation. Market development. Prices & marketing: Corn prices, corn market trends, soybean prices, wheat prices. News. Research & innovation. Production (Corn, soybean, wheat). Market development (Corn, soybean, wheat). Industry (Corn, soybean, wheat). Consumer resources (Corn, soybean, wheat).

Bottom row: Copyright. Terms of use. Privacy policy.

The 4.5 cm high band across the top (between the top and middle rows) shows rotating views of corn, soybean, and wheat plants or fields. The GFO is at the left end of this band.

Text on home page: "Welcome to the Grain Farmers of Ontario website. Grain Farmers of Ontario represents Ontario's 28,000 farmers who grow corn, soybeans and wheat. Our organization is the trusted and definitive resource on all issues related to growing these crops in Ontario. This site is designed to provide vital resources to help Ontario's corn, soybean and wheat farmers make daily business decisions. It also highlights the dynamic ways corn, soybeans and wheat are being utilized both here at home and around the world!

"Grain Farmers of Ontario (GFO) is in the process of merging our three founding groups: the Ontario Corn Producers' Association, Ontario Soybean Growers and Ontario Wheat Producers' Marketing Board into one organization. During this transition, some sections of this site remain linked to the OCPA, OSG and OWPMB websites. Please check back often, as GFO transition updates unfold."

3096. Ontario Farm Products Marketing Commission. 2009. It's official: Grain Farmers of Ontario is newest marketing board. McGuinty government supports agriculture sector (News release). Ontario, Canada: Ontario Ministry of Agriculture, Food & Rural Affairs (OMAFRA). 2 p. Dec. 17.
• ***Summary:*** Ontario's 28,000 corn, soybean and wheat producers officially have one marketing board as of New Year's Day, 2010.

"Effective January 1st, Grain Farmers of Ontario (GFO) replaces the Ontario Corn Producers' Association, Ontario Soybean Growers and Ontario Wheat Producers' Marketing Board.

"The announcement caps months of work following a vote among producers that showed the strategy had the necessary support to move forward."

Quotes: Leo Guilbeault, Chair, Ontario Soybean Growers says: "It is an exciting time for Ontario's grain farmers. This new organization that represents five million acres of farmland and $2.6 billion in sales will have a positive impact on the province."

Note: On December 17 the legislation was passed by the Ontario government that ties up all the loose ends, makes GFO official, and gives it the powers it requested. The legislation takes effect on 1 Jan. 2010.

3097. Schaer, Lilian. 2009. Can soybeans be the solution to potholes? New soy-based asphalt sealant is improving North American roads. *Ontario Grain Farmer* 1(3):22-23. Dec.
• ***Summary:*** "RePLAY is a soy and canola-based pavement preservation agent that extends the life of existing asphalt surfaces like roads and parking lots by protecting them from the freezing and thawing cycles of Canada's harsh winters. Asphalt oxidizes and wears out due to the oxygen in the air. Small cracks form in the asphalt and fill with water, which freezes in the winter, causing larger cracks and potholes." This can be prevented by spraying on RePLAY, which has no significant on the skid resistance of the asphalt surface.

The cost of applying RePLAY is about $1 to $2 per square meter depending on the age of the asphalt.

Note: RePLAY: Asphalt Preservation Agent was developed and is now manufactured by BioSpan Technologies, Inc., 6540 Meyer Dr., Washington, Missouri 63052 USA.

3098. Wiley, Mary. 2009. Soy for life: The soy food industry is poised for growth. *Ontario Grain Farmer* 1(3):10-11. Dec.
• ***Summary:*** "Soy for Life" is the name of a new communications campaign launched by Soyfoods Canada (a

trade association composed of Canada's leading soy food and beverage manufacturers) to help boost sales. "Their products represent a $340 million business in Canada," making soy foods and beverages part of Canada's grocery mainstream.

"This mainstream presence came as a result of... a 1999 US government labeling claim for soy, but sales have slowed somewhat in the past couple of years."

Peter Joe, President of Sunrise Soya Foods and head of Soyfoods Canada's board of directors says that his association has been "focusing on encouraging a labeling health claim for Canadian soy food and beverage products similar tot he one that exists in the US." But recently the association "has shifted its attention back to marketing and communications activities targeted to consumers and consumer influencers." The campaign is designed to re-introduce Canadians of all ages to the benefits of soy.

"Dr. Brian Wansink of Cornell University's Food and Brand Lab was the keynote speaker at Soyfoods Canada's Soy Symposium, held recently [Oct. 5] in Toronto. He advised the gathering of marketers, retailers, distributors, and other soy industry stakeholders to target young women in the 18 to 35 age group, using an incremental usage approach." Dr. Wansink sees a bright future for soyfoods in Canada.

"Results of an Angus Reid September 2009 online survey of 1,000 Canadians about soy foods... showed that consumption of soy food products is highest among young Canadians, higher income households and women. It also showed that women in the 18 to 34 age group, who tend to be more frequent soy consumers, are particularly attuned to messaging about soy, both positively and negatively.

"Nutritional benefits: Dr. Allison Duncan, Canada's leading soy nutrition researcher, provided a thorough update at the symposium. Duncan and her human nutrition team at the University of Guelph recently released results of a study showing soy protein helps lower cholesterol and reduces the risk of heart disease in adults with type 2 diabetes."

"Market leaders in the tofu and soy beverage categories are using identity preserved [IP] non-GMO and organic soybeans in response to consumer demand."

A photo shows the Soyfoods Canada booth at The Journey to Your Good Health area of the Royal Agricultural Winter Fair. Some 150,000 visitors attended the fair.

3099. Cooper, Kim. 2010. Main developments leading to Grain Farmers of Ontario (GFO) (Interview). *SoyaScan Notes.* Jan. 6. Conducted by William Shurtleff of Soyfoods Center.

• ***Summary:*** Of the three organizations that recently merged to form Grain Farmers of Ontario, the Ontario Soybean Growers (OSG) was clearly the strongest financially and generally otherwise. The corn growers had spent a lot of money on legal costs arguing before the World Trade Organization (WTO) that U.S. corn was being dumped into Canada. It was partially for this reason that, about three years ago, OSG suddenly backed out of the merger negotiations for a while. Kim attended a meeting in Chatham on the subject. The soybean growers were getting a little antsy because the other two groups didn't have much money; the soybean growers were concerned that they would be paying more than their share of the expenses in the new organization.

But the three groups talked some more and did more political maneuvering and before long resumed the negotiations. Farmers were not at these merger negotiations; rather, they were represented by about 2 top executives for each of the three organizations at any given time. But over the years many of the negotiators changed–which caused even more problems as far as continuity. The meetings were not open to the public and not a lot of information came out–although a sincere effort was made to keep the soybean growers informed. So growers were informed, but there wasn't a lot to tell them, because the talks were going slowly and the content was not yet for public knowledge. Thus, the growers were not aware of the details of the negotiations. There was no attempt to conceal anything from the growers.

Remember that the farmers were a major reason for the original idea that the three organizations should merge–to avoid paying duplicate checkoff fees and duplicating activities. They could see that each of the three groups were doing many of the same things. So things started out based on good ideas, but (as often happens) politics gets mixed in and things start to go off track.

Finally each of the three groups of growers voted on the merger plan. To pass, the vote had to be favored by a certain percentage of the growers and of the production. Some soybean growers still think that the results of that vote were not accurate, that "the numbers just don't add up," but that the Ontario minister okayed them anyway. One of the objectors to the results was a former director of OSG, Dave McClary (District 5–Middlesex). He was quite upset. He wrote a number of letters to the farm newspapers detailing his objections. He went to the Ontario Farm Marketing Products group, which oversees the whole process, and again explained his objections.

Kim has been concerned for a number of years that all the soybean growers hear about is asking the government for more money. When OSG was planning its move from Chatham to Guelph, Kim was offered a position at Guelph. He turned down the offer (in April 2004) for various reasons. One reason was that he thought the leadership was getting too political while moving away from the grass-roots level. Instead of focusing on how growers could make more profit from growing soybeans, there was a huge push toward trying to get more money from the government. "I just didn't agree with where they were heading."

OSG was the last of the three groups to move to Guelph, into the same big building with the wheat and corn growers. Much politics surrounded the decision to move into that building.

From 1989 to Dec. 2003 OSG had published a very interesting and content-rich 8-page monthly periodical, *Ontario Soybean Growers Newsletter.* All of a sudden it disappeared. In its place, a 1-page monthly color insert was placed in the *Ontario Farmer.* Kim thought it was basically a way to cut costs. "It was a huge change. It also went overseas to all of our customers"–such as tofu and miso makers in Asia. "I think it was another shift away from meeting the needs of your customers, which included the growers and overseas customers, and putting more focus on lobbying. That's my reading on things. The thrust and focus of OSG has changed dramatically over the past 10 years. I addressed the board of directors before I left. I said: "I think you're moving away from serving the needs of your growers. You are becoming a little bureaucracy of your own, moving to Guelph.' The feeling was: All the other agri organizations are in Guelph, so we'd better be there too. A lot of politics were involved, a lot of back-room maneuvering.

OSG originally chose to locate in Chatham because the location was central to Essex, Kent, and Lambton, the main three soybean growing areas. Guelph is not the center of soybean growing in Ontario, but it is the center of Ontario ag organizations. The capital of Ontario is Toronto." Guelph is between Chatham and Toronto, about 85% of the way to Toronto, and far to the northeast of Chatham.

Kim thinks the main reason for the big changes in OSG was a change in the leadership. At the annual meeting, the directors are elected by the soybean growers in each district, and an executive is elected from within the directors. Kim believes that the leadership has deteriorated greatly over the last 5-8 years. Their top priority has shifted to politics and lobbying–rather than the farmers.

One of the "buzz words" or basic ideas during this time has been that Ontario soybean growers were not on a level playing field with their competitors, and especially with farmers in the USA who were given big federal subsidies in the farm bills. Canadian farmers came to expect the same subsidies per capita that U.S. farmers were given by their government–even though they knew it wasn't going to happen, in part because Canada's government was trying to reduce its spending and deficits, be fiscally responsible and balance its books. "So the farmers are still asking for more money, even though they realize the government is giving out less money in subsidies to agriculture." Kim is a city guy and all year he hears the criticism from non-farmers: "Farmers are always whining for more money." That's a real knock against Ontario's farmers.

The growers launched a big campaign: "Farmers feed cities." It started out as a good idea, to make the public more aware of the importance of farmers in their daily lives. But it soon became political, and the idea was implied, "Therefore we need your subsidies." It was a way to get the public to pressure the government to give farmers more money. "It was never going to happen and the growers knew it as never going to happen."

Kim agrees with this basic idea that the playing field was not level. American farmers are much better represented in their federal government than Ontario or Canadian farmers. And federal subsidies to U.S. farmers makes it hard for Canadian farmers to complete with their American counterparts.

When Kim was at OSG, there was great focus on breeding soybeans which were as close as possible to what Asian soyfood makers said they wanted, then shipping them identity preserved (IP) overseas. There were both incoming and outgoing missions to serve these soyfood makers. The key group became the Canadian Soybean Export Association (CSEA) which did these trips. In recent years the executives of OSG felt that CSEA was not performing as well as they could. So they formed their own organization named the Canadian Soybean Council (CSC), which in the beginning was a farmer-to-farmer group working on various research projects such as disease resistance. Originally it was not designed to compete with CSEA, but it evolved into that and now there is conflict between CSC and CSEA and quite a bit of duplication of effort. "Now two groups going to Asia and our soybean customers there asking 'What's going on here?' They are confused and the grass-root soybean growers are not aware of what is happening in this area. "With OSG's main focus on lobbying, this sort of thing gets shuffled to the sidelines or back pages. Yet it is a real issue; the overlap doesn't help Ontario soybean farmers and it doesn't help our customers overseas. People have stood before the OSG board and explained this problem, and they are still doing it. Representatives from CSEA have also met with representatives of CSC.

Victory Soya Mills didn't really shut down and disappear; it was basically moved to Hamilton, Ontario. Ontario now has two soybean crushers, but it used to have three. There were many reasons that Victory Soya Mills was shut down and demolished–from environmental issues (it stunk), to high taxes, to terrible traffic jams when trucks filled with soybeans tried to go to and from the plant, to the rising value of the property for condominiums.

Fred Brandenburg is fine. He now works full-time for Agriculture and Agrifood Canada in Guelph. Kim keeps in touch with him. He was the perfect man for the job while he was at OSG and a great man to work for.

Does Kim think the new organization, Grain Farmers of Ontario, will work? Yes, he thinks it will work because the farmers want it to work. Obviously, as with any new

organization, they will have to go through some bumps and obstacles.

Dale Petrie is an import to the soybean industry; his background was in seed corn. Kim worked for him when he worked at King Grain.

None of what Kim has said above is confidential; he has said it before and people know his position. Kim's grandfather was part of OSG in the early days. Address: Agricultural Coordinator, Economic Development Services, Municipality of Catham-Kent, Chatham, Ontario, Canada.

3100. Agriculture and Agri-Food Canada. 2010. Canadian Agriculture Library (Website printout–part). http://www.agr.gc.ca. 1 p.

• ***Summary:*** "The Canadian Agriculture Library provides a wide range of information services to Agriculture and Agri-food Canada, and its portfolio partners such as the Canadian Food Inspection Agency. Through its partnership with the Canada Institute for Scientific and Technical Information (CISTI), the Canadian Agriculture Library also provides the research and academic community, the agri-food industry and Canadians access to its collection.

"Since its formal establishment in 1910, the Canadian Agriculture Library has built one of the foremost collections in the world in the agricultural and food sciences, with more than one million volumes, including 4,000 current subscriptions and numerous special collections. Specialty subjects include dairying, entomology, horticulture, pesticides, plant diseases, soil science and veterinary medicine.

"The Canadian Agriculture Library provides services through its Main library in the National Capital Region and its 21 information centres located in research stations across the country." Address: 1341 Baseline Road, Ottawa, Ontario K1A 0C5, Canada. Phone: 613-773-1000.

3101. The 2010 non-GMO sourcebook: A buyers guide to global suppliers of non-GMO and organic seeds, grains, ingredients, and foods. 2010. Fairfield, Iowa: Evergreen Publishing, Inc. 106 p.

• ***Summary:*** Contents: Editor's introduction (by Ken Roseboro, publisher and editor). Suppliers of non-GMO products: United States, Canada, Europe, Africa / Middle East, Asia / Australia, Latin / South America. The Non-GMO Project special section (includes comments by Michael Potter and Nature's Path {in Canada}). Related products, services, and organizations. rBGH-free dairy processors in the US. Index of non-GMO suppliers by product category: Seeds (corn, soybeans), canola / rapeseed, processed canola /rapeseed products, corn / maize, processed corn / maize products, soybeans (identity preserved, specialty, organic), processed soy products (flakes, flour, germ concentrate, grits, lecithin, meal, nuts, oil, low linolenic oil, phytosterols, protein, textured protein, soymilk, soymilk powder, soy sauce, tofu, vitamin E / tocopherols), other grains / oilseeds and processed products (alfalfa / hay, barley, cotton,...), other ingredients and processing aids (citric acid, dairy ingredients...), sweeteners, food products, food supplements, animal feed. Index of related products, services and organizations. Complete index of listings. Index of advertisers.

Note 1. In the Suppliers section, many company entries have the Non-GMO Project logo (with an orange and black butterfly on a green leaf) next to their company name (e.g., Eden Foods, p. 17; WholeSoy & Company, p. 42).

This comprehensive book gives the single best picture of the growing industry, worldwide, opposed to genetic engineering. Address: P.O. Box 436, Fairfield, Iowa 52556. Phone: 1-800-854-0586.

3102. Stelter, Gilbert A. 2010. Defending the rural way of life: Charles Zavitz and the improvement of agriculture in Canada. Ontario, Canada. 27 p. Unpublished typescript. 28 cm. [79* footnotes]

• ***Summary:*** An outstanding, carefully documented biography of Charles A. Zavitz. As of Jan. 2010, Dr. Stelter hopes to update it and have it published soon. Gil thinks the best Zavitz archives are in basement of McLaughlin Libe; James R. Zavitz contributed most of it. Address: History Prof., Univ. of Guelph, Ontario, Canada. Phone: 519-821-9267.

3103. *SoyaScan Notes.*2010. Commercial soyfoods products wish list (Overview). Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** 1. Organic, non-GE soy protein isolates (2002/03). 2. A very low calorie soy beverage for weight loss in hospitals. Must be able to be used as a sole source of nutrition. 3. More smoked tofu in America.

4. Meatless pepperoni, sausage shaped, for use atop a meatless pizza. 5. Natural shoyu brewed in America, ideally as part of a joint venture with a Japanese shoyu company. 6. A vegetarian Worcestershire sauce, with no anchovies (John Troy developed "The Wizard's Worcestershire Sauce" for Joel Dee's Premier Japan line in about 1995; it was vegetarian).

7. A low-calorie, low-fat tofu. Fat and calorie content should be at least 30% lower than that made from whole soybeans. The easiest way to make this product would be to run soymilk made from whole soybeans through a decanting centrifuge (like a cream separator) to remove the desired amount of fat, just like the dairy industry does to make low-fat or non-fat milk. There is a big potential market for such a product since 1% fat milk has now passed low-fat milk (2%) as the best-seller in American supermarkets (11 Sept. 1991). 8. Bland soymilk base (11 July 1997). Presently no company (including International ProSoya Corp. of Canada,

Pacific Foods of Oregon, and Ted Nordquist dba TAN Industries, Inc. etc.) offers this product.

9. A soy-based kefir made from authentic kefir grains/ cultures plus FOS (fructooligosaccharides), a dietary fiber derived from chicory roots. FOS feeds and increases the level of "good guy bifidobacteria by up to five times in the gastrointestinal tract, and boosts the body's absorption of calcium and other minerals by up to 50 percent." See article in *Ag Innovation News* (April 1999, p. 3, 14).

3104. *SoyaScan Notes.*2010. Europe's biggest international food fairs / shows and expositions: ANUGA, SIAL, Helfex, and CIBUS (Overview). Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** ANUGA and SIAL are held in Cologne (Germany) and Paris (France) respectively on alternating years in October. Each fair lasts for about 6 days, and tickets cost about $20. Food people and companies come from all over the world to exhibit and see the latest in all kinds of foods and food equipment. ANUGA is held on odd numbered years (1987, 1989, 1991, etc.) and SIAL on even numbered years (1986, 1988, 1990).

ANUGA (pronounced uh-NEW-guh) stands for *Allgemeine Nahrungs und Genussmittel Ausstellung* ("General exhibition of food and food adjuncts {stimulants / enjoyables"}). Billed as the "World Food Market–Consuma–Gastroma–Tecnica," it is held at the Cologne Messe (Exhibition Center) and is sponsored / produced by Messe und Ausstellungs Ges. mbH, P.O. Box 210760, D-5000 Cologne, West Germany. Phone: 221-8210. The first ANUGA fair was held in 1929. Statistics at ANUGA in 1986 were mind-boggling: 200,000 visitors; 5,201 companies exhibiting, from 86 different countries; and what seemed like 50 miles of exhibit space (actually 227,000 square meters).

SIAL (pronounced see-AL) stands for "Salon International de l'Alimentation," and is also called the 'International Food and Dairy Exhibition'. The first SIAL was held in Nov. 1964. The permanent address of SIAL is 39 rue de la Bienfaisance, 75008 Paris.

The 'SIAL d'Or' (also called 'Golden SIAL' or Food Oscar') gold medal awards, first presented in Oct. 1986, are given for the best new food products in each food category at the AIDA-SIAL International competition judged in Paris in June. The Oscars are a bi-annual competition between 16 nations, including Canada, Great Britain, Italy and the USA. Each country presents products in 7 food and beverage categories: Grocery, alcoholic drinks, non-alcoholic drinks, dairy, deep-frozen, meat / poultry and delicatessen. The retail trade in each country nominates the representative products. At least one soy product, So Good, a soymilk produced by Sanitarium Foods in Australia, has been awarded the Golden SIAL.

Helfex, the International Health Food Trade Exhibition and Convention, is much smaller than the two fairs mentioned above and its scope is much more limited. Held biannually in the spring in the United Kingdom on even numbered years, it is sponsored by the British Health Food Manufacturers Association and the British Health Food Trade Association. The Foreign Agricultural Service (FAS) of the USDA typically has a large pavilion featuring booths representing U.S. health / natural food manufacturers. In 1988 at least 8,000 visitors came to Helfex from 25 countries. About 600 exhibitors were there and the U.S. Pavilion was the biggest booth at the entire show. About 88% of the natural foods products at Helfex '88 came from the U.K. The first Helfex was held on 17-19 March 1974 at the Bloomsbury Centre Hotel in London. The tenth Helfex was held on 8-9 April 1990 in Birmingham, England; over 200 companies exhibited in Birmingham. For more information contact the British Health Food Trade Assoc., Angel Court, High Street, Godalming, Surrey, GU7 1DT, England. Phone: 0483-426450. Fax: 0483-426921.

CIBUS (pronounced CHI-bus), the biggest food fair in Italy, is held in Parma in about May each year.

3105. *SoyaScan Notes.*2010. Historical research on the dissemination of the soybeans worldwide: Wish list (Overview). Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** In the record titled "Countries, overseas dependencies, and Canadian provinces in which we have no record of soya ever having been cultivated (Overview)," try to find when and where soybeans were first cultivated in each of these geographical areas.

Africa: In 1873 Prof. F. Haberlandt obtained soybeans from Tunisia. What was his source? When, how and from where were these soybeans first introduced to Tunisia?

Asia–Central: In 1873 Prof. F. Haberlandt obtained soybeans from Transcaucasia. What was his source?–Perhaps the Republic of Georgia. When, how and from where were these soybeans first introduced to Transcaucasia. Clarify when and where soybeans were first cultivated in the Republic of Georgia (before 1911, maybe before 1873), and in Kazakhstan (before 1940), and in general in Transcaucasia. Learn more about the work of G. Sturua with soybeans.

Canada–The story of the arrival of the soybean in Canada between 1855 and 1894 needs to be researched. There must be some early records, similar to those from the Commissioner of Patents.

Europe–Western: Make a good translation of F. Haberlandt's 1878 classic *Die Sojabohne*, accompanied by 2 maps of the places in Europe where Haberlandt and his cooperators grew soybeans (one of the area in 1878 and one now; travel in Eastern Europe to get these) and a database for making a good overview: What kind of people tested the

soybeans? (Gutsbesitzer, Freiherr, Schloss-gaertner, agricultural institutions, etc.). Who got the best yields and where? In Aug. 1878 Prof. Friedrich Haberlandt wrote: "In Tirol [Tyrol, Austria] the soybean is called the Coffee Bean *(Kaffebohne)* and used to prepare a coffee substitute." When and how were these soybeans introduced to Tirol?

Europe–Eastern: Write a biography of Mr. Ovsinskii (Also spelled Ovsinski, Owinsky, Ovinsky) of Podolia, Ukraine (See Sempolowsky 1900) who traveled to Asia, introduced soybeans to Russia, was the first man in Russia to grow and test them extensively, then publicize their many virtues.

USA: Write a good history (with a good bibliography) of Chinese growing and processing soybeans in California. They must have grown them between 1849 and 1899! Likewise with Japanese growing soybeans in California.

3106. *SoyaScan Notes.*2010. People I want to contact to do an interview: Wish list (Overview). Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** Bob Swanson, founder of Llama, Toucan & Crow.

Charlie Smail, founder of Shadowfax.

Parshan Sahota, owner of LifeSource.

Gene Newman of Manna Foods (Scarborough, Ontario, Canada). Who founded the first natural foods distributors headquartered in Canada? Lifestream, founded by Arran Stephens was first I think.

3107. *SoyaScan Notes.*2010. Chronology of tofu worldwide–1930 to present. Part II. Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** 1930s early–Azumaya Tofu Seizo-sho (later renamed Azumaya Co.) starts making tofu, *yaki-dofu* (grilled tofu), and *ganmodoki* (fried tofu patties) in San Francisco at 1636 Post St. between Buchanan and Laguna streets. The company is owned by Mr. Teranishi, who may have started it as early as the early 1920s. In Feb. 1937 it was sold to George and Jack Mizono, and their mother and father (Saichi Mizono).

1932, Dec.–Madison Foods, part of Madison College in Madison, Tennessee, was making Soy Cheese, then by 1939 they had launched Cheze-O-Soy (seasoned tofu), and by 1940 they were making a canned tofu bologna named Yum.

1934–By this year Loma Linda Food Co. (Adventist) in Loma Linda, California, was making Loma Linda Vege-Cheese (canned tofu with pimiento).

1942 Sept.–Dr. Harry Miller, a Seventh-day Adventist doctor who had worked for many years in China as a medical missionary, begins making Miller's Soya Cheese (tofu) at Mt. Vernon, Ohio.

1944 Sept.–Butler Food Co. in Cedar Lake, Michigan, introduces Butler's Soynut Cheese. Note that the first five Caucasian-run tofu companies in the Western World were all founded and run by Seventh-day Adventists. Note also that each of these five Seventh-day Adventist tofu products used the word "cheese" in the name and that each was canned. 1957 Aug.–Shizuka Hayashi, head of the Japanese-American Soybean Institute in Tokyo, publishes (in *Soybean Digest)* the earliest English-language statistics on tofu in Japan. "There are approximately 45,000 tofu manufacturers in Japan, of which about 23,000 are members of the Tofu Association. There is one large factory in Osaka, the largest in Japan, which consumes 2 tons of soybeans a day." In 1957 Japan will use somewhere between 160,000 and 308,000 tons of soybeans to make tofu.

1958–The world's first packaged tofu is sold in Los Angeles, California, by Matsuda Hinode Tofu Co. Mr. Shoan Yamauchi, owner, conceived of the idea of putting individual cakes of tofu each in a plastic bag with water, sealing the bag with a heat sealer, placing the bag in a stiff paper deli carton with a wire handle, then folding over the top. The process was labor intensive. This happened at about the same time that a letter from journalist George Yoshinaga had led the city to pass a new regulation requiring tofu to be packaged in individual containers.

1958–Tofu is first sold in a U.S. supermarket–Boy's Market supermarket chain (which had about 12 stores at the time) in Los Angeles. The tofu was sold in individual packages (see above) and made by Matsuda Hinode Tofu Co., whose owner, Mr. Shoan Yamauchi was responsible for this major innovation, and for seeing the mainstream potential of tofu.

1965–The Library of Congress establishes the subject heading "Tofu" as the official name for that food in cataloging books for libraries across America. However, in the mid-1970's disputes arose there about the proper form of romanization of that term. The dispute was resolved by the decision to use the common English term "Bean Curd" instead.

1966–Tofu is first packaged in plastic trays/tubs, the type so widely used today. Again, Mr. Yamauchi conceived of the idea. He went to the Sealright Company in Los Angeles that made Sealright trays and asked them to make a waterproof plastic tray for his tofu. Mr. Yamauchi created three specific early innovations in tray packaging: (1) A very deep tray, holding 26-28 ounces; (2) A method for heat sealing a plastic film to the flange of a tray which had cold water flooding over the flange; (3) High-speed sealing machines to pack and seal the tofu in his plant.

1975 March–Alec Evans, owner of first of the new breed of Caucasian-run tofu shops, starts to make "Tofu" in Corvallis, Oregon. His Welcome Home Bakery and Tofu Shop is the sixth Caucasian-run tofu company in America.

1975 Dec.–*The Book of Tofu,* by Shurtleff and Aoyagi, is published by Autumn Press. This book, which had sold about 550,000 copies by 1997, played a major role in introducing tofu to the Western World.

1977 Aug.–Takai Tofu & Soymilk Equipment Co. publishes its first English-language equipment catalog, which helps many American and European tofu shops to get started.

1977 Sept.–White Wave, owned by Steve Demos, starts making tofu at 1738 Pearl St., in Boulder, Colorado.

1977–Morinaga Milk Industry Co., Ltd. in Japan introduces the world's first aseptically packaged tofu in a Tetra Brik carton. It is named "Morinaga brand Tofu. Soybean Curd." In 1978 the name was changed to "Morinaga brand Ever-Fresh Silken Tofu."

1977–Swan Foods Corporation, owned by Robert Brooks and Mary Pung, starts making "Tofu–Organic" at The Soybeanery, 5758½ Bird Rd., Miami, Florida. This is the first tofu in the Western World labeled "Organic." Swan Foods is also the first American company to make a wide variety of soyfoods, and the first to open a soy deli–which had a take-out menu.

1978 April–Nasoya Foods, owned by John Paino and Bob Bergwall, starts making Nasoya Organic Tofu (water pack) at Mechanic Street Exit, Leominster, Massachusetts.

1978 Dec.–*The Book of Tofu*, by Shurtleff and Aoyagi, is published by Ballantine Books in a mass-market edition that retails for $2.95.

1979 July.–*Tofu & Soymilk Production*, by Shurtleff and Aoyagi, is published by Soyfoods Center in California. This book is used to start hundreds of tofu manufacturing companies throughout the Western World and in some Third World countries.

1982 April–There are 242 tofu manufacturers in the Western World, including 173 in the United States.

1985 June–The Library of Congress decides to change its subject heading from "Bean curd" back to "Tofu." This, perhaps more than any other single thing, makes the word tofu "official."

1983–House Food Industrial Co., Ltd. of Japan purchases 50% ownership in Yamauchi Enterprises (formerly Hinode Tofu Co., owned by Mr. Shoan Yamauchi) in Los Angeles. The company is renamed House Foods & Yamauchi, Inc.

1989 Dec.–Sixty-five books (more than 48 pages long) on tofu have been published in the Western World since 1970. Each one has the word "tofu" or its equivalent in the title. Forty of these books were published in the United States, 6 in Canada, 5 in Switzerland, 5 in Japan (but written in English for sale primarily outside of Japan), 3 in West Germany, 3 in France (but 2 of these were published simultaneously and primarily in Quebec, Canada), 2 in England, and 1 each in Italy, Sweden, and Brazil.

1990 Aug. 3–Hong Kong Soya Bean Products Co. Ltd. (makers of Vitasoy) acquires Nasoya Foods of Leominster, Massachusetts.

1993 June–Vitasoy purchases Azumaya Inc. (America's largest tofu manufacturer, and the low-price leader) in California for an estimated $4-$5 million.

1993–House Foods Corp. of Japan purchases the remaining 50% of House Foods & Yamauchi, Inc. from Mr. Shoan Yamauchi. The new company is renamed House Foods American Corporation.

1997 March 12–House Foods America Corporation holds the opening ceremony for America's largest tofu factory, in Garden Grove, California; the company closes its tofu plant in central Los Angeles.

3108. *SoyaScan Notes.*2010. Chronology of Kikkoman Corporation. Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** This chronology is based largely on the excellent chronologies near the back of Kikkoman annual reports, and dates in Fruin (1983). "Ideally situated close to soybean-growing regions as well as the Edo River, which provided a convenient transportation route for consumers in or near Edo, or present-day Tokyo, Noda has been well-known for its soy sauce (shoyu) production since the Edo period. Noda is located about 30 miles northeast of Tokyo in Chiba prefecture.

"Kikkoman Soy Sauce first went on the market in 1661 when the Takanashi and Mogi families constructed breweries and started the brewing of soy sauce."

1914–When World War I started, excessive competition arose between Japan's many shoyu producers because of the wartime economy, causing a very confused market situation. 1917 Dec.–With these conditions as a background, eight Mogi and Takanashi family companies, the leading shoyu producers in the Noda area, merged to form Noda Shoyu Co., Ltd., a company with capital of ¥7 million and the predecessor of Kikkoman Corporation."

"1925 April–Noda Shoyu Co., Ltd. absorbs Noda Shoyu Jozo Co., Ltd., Manjo Mirin Co., Ltd., and Nippon Shoyu Co., Ltd., through a merger. 1926–Kikkoman No. 7 shoyu brewing plant constructed.

30 August–The Takasago soy sauce production plant (formerly the Kansai Plant) is constructed near Osaka and completed in 1931. 1936–Kikkoman Worcestershire Sauce plant completed. 1939–With the start of World War II, government controls on the price of soy sauce are established.

1946–Kikkoman stock first becomes available to the public. 1949–Export of Kikkoman soy sauce is reestablished after the war.

1950–Wartime soy sauce controls end and free competition resumes. "1957 June–Kikkoman International Inc. (KII) is established in San Francisco, California, in the United States. 1958–The first KII branch is established in Los Angeles.

"1960–The second KII branch is established in New York.

"1961 July–Kikko Food Corporation is established (later renamed Kikko Food Industries Co., Ltd.) In July 1991, the company becomes Nippon Del Monte Corporation. 1961–Seishin Pharmaceutical Co., Ltd. established. 1962 February–Tone Beverage Co., Ltd., is established. In February 1963, the company becomes Tone Coca-Cola Bottling Co., Ltd. 1962 October–Katsunuma Yoshu Co., Ltd., is established. In March 1964, the company becomes Mann's Wine Co., Ltd. 1963–Japan Calpak Co., Ltd. established. 1964 October–Noda Shoyu Co., Ltd., is renamed Kikkoman Shoyu Co., Ltd. 1965–The third KII branch is established in Chicago, Illinois. 1966–Sales of Higeta brand products assumed by Kikkoman. 1968–Bottling of Kikkoman Soy Sauce for the American market begins at the Leslie Foods plant in Oakland, California.

1969 June–Kikkoman invests in and merges with Japan Food corporation, the biggest distributor of Oriental food in the United States. In June 1978 the company becomes JFC International Inc.

"1970 March–Kikkoman invests in and merges with Pacific Trading Co., Ltd., a sister company of Japan Food Corporation. 1972 March–Kikkoman Foods, Inc. (KFI), is established in Walworth, Wisconsin (USA) for the purpose of manufacturing soy sauce and teriyaki sauce. Shipping starts in early 1973. 1972 August–Kikkoman + Daitokai (Europe) GmbH is established in Düsseldorf, in Germany. 1974 February–Kikkoman Restaurant, Inc. is established. 1979 March–Kikkoman Trading Europe GmbH is established in Neuss, in Germany.

1980 October–Kikkoman Shoyu Co., Ltd. is renamed Kikkoman Corporation–the company's present name. 1983 January–Kikkoman Ajinomingei Co., Ltd., is established. 1983 June–Kikkoman (S) Pte. Ltd., a production facility, is established in Singapore. 1983 October–Kikkoman Business Development Inc. is established. 1986 August–New *Shoyu* production facilities come on stream at Kikkoman's Chitose Plant, in Hokkaido.

"1990 January–Kikkoman buys perpetual marketing rights for the Del Monte brand in the Asian-Pacific region, excluding the Philippines. 1990 February–A joint venture company, President Kikkoman Inc. is established to produce soy sauce in Tainan, in Taiwan. 1996 April–Kikkoman invests in Kikkoman Foods Europe B.V., Europe's first soy sauce manufacturer, located in Hoogezand-Sappemeer, in the Netherlands. 1996 May–Production of *Shochu* a clear Japanese spirit, commences at a new facility of the Ojima Plant. 1997 March–Kikkoman holds a ground-breaking ceremony for its second U.S. soy sauce production plant, in Folsom, California, in the United States. 1997 October–Kikkoman Foods Europe B.V. begins operations at its plant [in Hoogezand-Sappemeer, the Netherlands]. 1998 October–The second manufacturing plant of Kikkoman Foods, Inc., in Folsom, California, begins shipments. 1999 July–Kikkoman opens its new headquarters in Noda, Chiba prefecture, to commemorate the Company's 80th anniversary. 1999 October–Kikkoman Institute for International Food Culture is opened at the Company's new headquarters. 1999 November–Kikkoman announces a joint venture with its partner in Taiwan [Uni-President Enterprises, Taiwan's largest food manufacturer] to build a soy sauce plant in China" [In Kunshan, near Shanghai].

2000 May–Kunshan President Kikkoman Biotechnology Co., Ltd. is established. 2000 Aug.–Construction starts on a soy sauce plant in China. The first shipments are slated for spring 2002.

2002 May–The China plant Kunshan President Kikkoman Biotechnology Co., Ltd., holds its grand opening.

2003 May–Kikkoman Foods, Inc. (with its plant at Walworth, Wisconsin) holds its 30th anniversary ceremony.

2004 March–Kikkoman invests in Higeta Shoyu Co., Ltd. and Kibun Food Chemifa Co., Ltd.

3109. *SoyaScan Notes*.2010. Chronology of miso and soybean chiang. Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** 1st century B.C.–Soybean chiang is first mentioned in China in the *Shih chi [Historical records]* by Ssu-ma Ch'ien, and in the *Chi chiu p'ien [Primer on addressing matters],* by Shih Yu.

535 A.D.–The *Ch'i min yao shu* in China gives the first detailed descriptions of making soybean chiang–and other soyfoods.

701–Soybean hishio, miso, and soy nuggets start to be made in Japan by the *Hishio Tsukasa,* a government bureau. References to these seasonings are found in documents published between 730 and 748.

901-08–The modern word for *miso* first appears in Japan in the *Sandai Jitsuroku.*

927–The *Engi Shiki* gives the first details about the production of soybean hishio-miso in Japan.

1597–Miso is first mentioned by a Westerner, the Florentine Francesco Carletti; he calls it *misol.*

1712–Englebert Kaempfer, a German who lived in Japan, is the first European to give detailed descriptions of how miso and shoyu are made in Japan. Also mentions koji.

1727–Miso is first mentioned in an English-language publications, *The History of Japan,* by E. Kaempfer. He spells it *"Midsu,* a mealy Pap, which they dress their Victuals withal, as we do butter."

1779–The word "miso" ("that is used as butter") first appears in an English-language publication, the *Encyclopaedia Britannica.* 1847–The word "miso" first appears in print in the United States, in a letter from T.W.H. of Cambridge, Massachusetts, to the *Farmers' Cabinet and Herd Book.*

1908–Miso is first made commercially in the continental United States by the Fujimoto Co. of San Francisco, California. Brand name: Kanemasa Miso.

1921–The term "bean paste" is first used to refer to miso by J.L. North of England in the *Illustrated London News.*

1929–Amano Brothers, Canada's first commercial miso maker, starts in Vancouver, British Columbia. Founder: Mr. Teiichi Amano. 1960–Dr. C.W. Hesseltine and K. Shibasaki, of the Northern Regional Research Laboratory in Peoria, Illinois, publish the first of many important scientific articles on miso.

1963–Michio and Aveline Kushi, teachers of macrobiotics in Boston, start to teach Americans about miso.

1966 April–Aveline Kushi (with Evan Root) starts Erewhon, a pioneering retailer in Boston, that soon starts selling miso.

1968–Erewhon expands to become an importer and distributor of natural and macrobiotic food. Their first two misos, Mugi Miso and Hacho Miso, are imported from Japan.

1976 June–Miyako Oriental Foods, a division of Yamajirushi Miso Co. in Japan, starts making miso in Los Angeles. Owned by Noritoshi Kanai. Brands: Yamajirushi, Kanemasa, Yamaizumi.

1976 Sept.–*The Book of Miso,* by Shurtleff and Aoyagi, is published by Autumn Press of Hayama, Japan. This is the first book about miso in the Western world.

1978 Oct.–The Ohio Miso Co., the first Caucasian-run miso company in the Western world, is founded by Thom Leonard and Richard Kluding. They begin miso production on 13 March 1979.

1978 Nov.–Joel Dee of Edward & Sons (New Jersey) launches Natural Instant Miso Cup, an instant miso soup made with freeze-dried miso from Japan.

1978 Dec.–Miyako Oriental Foods of Los Angeles introduces Cold Mountain Firm Granular Rice Koji, the first koji sold commercially in the USA. In 1979 they start selling Cold Mountain Miso, the first miso with an American-style brand.

1979 Oct.–John and Jan Belleme arrive in Japan to study traditional miso–and koji-making with the Onozaki family in Yaita, Japan. They are the first Caucasians to do this, and then to return to the West to start making miso commercially. From 1981 on they write many superb articles about miso, published in America.

1979 April–Shin-Mei-Do Miso is founded by Lulu and Yasuo Yoshihara in British Columbia, Canada.

1981 April–John Troy of Elf Works, Ltd. in Chapel Hill, North Carolina, launches Hot Stuff, an early and very successful American miso product. He first learned about miso from Joel Dee.

1981 Aug.–John and Jan Belleme begin full-time, large-scale production of miso and koji at Erewhon Miso Co. in Rutherfordton, North Carolina. By early 1982 their company is renamed American Miso Co. with Barry Evans as the new owner.

1982 Oct. 25–Christian and Gaella Elwell start making miso and koji at South River Miso Co. in Conway, Massachusetts. Earlier that year they purchased The Ohio Miso Co. Address: Lafayette, California. Phone: 925-283-2991.

3110. *SoyaScan Notes.*2010. Chronology of green vegetable soybeans and edamamé (incl. maodou) worldwide–A.D. 1275 to 1939. Part I. Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** First a few basic definitions: (1) "Vegetable-type soybeans" refers to certain large-seeded soybean varieties developed for use as a vegetable crop. (2) "Green vegetable soybeans" refers to vegetable-type soybeans harvested at the green stage for use as a vegetable. The beans can be cooked and served in or out of the pods. (3) "Edamamé" is the Japanese term for green vegetable soybeans cooked and served in the pods, often as a snack–like peanuts in the shell. The green beans are popped out of the pods directly into the mouth of the person eating them.

Before 7th century BC–The *Shijing (Book of Odes)* is China's earliest classic and the earliest document seen worldwide that mentions the soybean, which it calls *shu.* It does not mention green vegetable soybeans. Zheng Xuan (Wade-Giles: Chêng Hsüan), the most important commentator of the 2nd century AD, confirms that *shu* refers to the soybean and that soybean leaves, called *huo,* can be pickled–presumably when green, then presumably eaten.

AD 100–The term *Sheng dadou* [Chinese characters: raw / fresh + large + bean] appears in both *Shennong bencao jing (Classical pharmacopoeia of Shen Nung)* and later (about AD 450-500) in the *Mingyi bielu (A critical record of famous doctors. A materia medica).* However a careful analysis of the context by a Chinese scholar who is an expert in the history of Chinese foods and of soybeans (H.T. Huang, PhD) indicates that this term refers to raw soybeans rather than fresh green soybeans. Therefore, surprisingly, we know of no early reference to green vegetable soybeans in China.

1275 July 26–The word "edamamé" first appears in Japan when the well-known Buddhist saint Nichiren Shônin writes a note thanking a parishioner for the edamamé he left at the temple. In: In: *Nichiren Shonin Gosho Zenshu (The Collected Writings of Saint Nichiren).*

1406–The Ming dynasty famine herbal titled *Jihuang bencao,* by Zhu Xiao is the earliest Chinese document seen that describes: (1) eating the tender leaves of soybean seedlings *(doumiao);* (2) eating the whole pods of young

soybeans, (3) eating green vegetable soybeans; (4) or grinding the green beans for use with flour. The last three uses are recommended for times of famine only.

1620–*Maodou* (Chinese characters: hairy + bean) are first mentioned in the *Runan pushi [An account of the vegetable gardens at Runan],* by Zhou Wenhua. "*Maodou* has green, hairy pods. It is also called *qingdou* ('green beans).' It is mentioned in the *Bencao* [materia medica] literature [we are not told which book], which states that it has a sweet flavor, is neutral, and nontoxic. It can be used medicinally mainly to 'kill bad / evil chi.' It stops bodily pain, eliminates water [reduces edema], dispels heat in the stomach, reduces bad blood, and is an antidote to poisonous drugs... Boil the beans in the pods until done, then remove the beans from the pods and eat them. The flavor will be sweet and fresh. Or you can remove the beans from the pods before cooking, then cook the beans in lightly salted water. Or the beans can be placed on a metal screen over a charcoal fire to roast or dry them... They can be served with tea or fruits, as a snack." This is also the earliest document seen that gives medicinal uses for green vegetable soybeans.

1855 April 12–T.V. Peticolas of Mount Carmel, Ohio, is the first Westerner to mention green vegetable soybeans. In an article on soybeans in the *Country Gentleman* (p. 12) he writes: "They are inconvenient to use green, being so difficult to hull."

1856–Only a year later, at least two Americans have apparently figured out how to shell them with ease, and to enjoy them. Thomas Maslin of Virginia writes: "They are fine for table use, either green or dry..." Abram Weaver of Bloomfield, Iowa, praises them in the *Report of the Commissioner of Patents, Agriculture* (p. 256-57). "I had some of them cooked, while green, at their largest size, and found them delicious."

1890 Dec.–The first large-seeded vegetable-type soybean variety arrives in America. Named Edamame, it was introduced from Japan by Charles C. Georgeson, who had been a professor of agriculture in Japan. Other early large-seeded varieties included Easycook (introduced in 1894 from Shandong Province, China) and Hahto (1915, from Wakamatsu, Japan).

1915 Jan.–William J. Morse (of USDA's Office of Forage Crop Investigations), the man most responsible for introducing green vegetable soybeans and vegetable type soybeans to the United States, mentions them for the first time in a USDA special publication titled "Soy beans in the cotton belt": "The green bean when three-fourths to full grown has been found to compare favorably with the butter or Lima bean."

1917–During World War I, USDA researchers conduct cooking tests on many soybean varieties in search of an inexpensive source of protein that lacks the typical unpleasant beany flavor and will cook quickly. Only two such varieties are found–Hahto and Easy Cook; both are large-seeded. Some progress is made in convincing Americans to eat these varieties–but only as whole dry soybeans.

1923 March–*The Soybean,* by Charles V. Piper and William J. Morse, published by McGraw-Hill (329 p.), is the first major book written about this plant in the United States. It contains a long section titled "Immature or Green Soybeans" (p. 221-22) that includes a description, nutritional analysis, recipe ideas. It also includes the first photograph in a U.S. publication of green vegetable soybeans, showing many cooked, open pods on a white plate. The caption reads: "Seeds and pods of the Hahto variety of soybeans, the seeds being especially valuable as a green vegetable." Between 1915 and 1929 Morse mentioned green vegetable soybeans in more than 20 publications.

1929-32–During the USDA sponsored Dorsett-Morse Expedition to East Asia, William J. Morse (now a soybean expert) and P.H. Dorsett were surprised to learn that: (1) Soybeans are widely "used as a green vegetable" or as "green vegetable beans," served in the pods. (2) The seeds for these soybean varieties are sold by horticultural seed companies, are listed with the garden beans in their seed catalogs, and are larger and sweeter than regular soybeans. On 24 April 1929, while in Tokyo, Dorsett made the first edamamé purchases, seven varieties with "Edamame" in the varietal name from T. Sakata & Co. They eventually collected more than 100 varieties of large-seeded vegetable-type soybeans (other suppliers included Yamato Seed Co. in Tokyo) and had them grown for a year at USDA's Arlington Farm in Virginia. (3) Edamamé account for less than 1% (actually 0.8%) of all the soybeans used in Japan. (4) Green soybeans are salt-pickled in the pod in Hokkaido, the northernmost main island. (5) The soybean seeds are planted at intervals of several weeks in the same field, then, when ready, the plants are uprooted and sold in bundles. On 15 July 1929 Morse wrote: "Saw many plantings of soybeans from just coming up to ready to pull for market. It is extremely interesting to note how they are planted for succession. We saw many plantings of beans ready for pulling for market with rows interplanted as seedlings or transplants just coming into bloom." Near Tokyo, three crops of vegetable soybeans are grown during the season–early, medium and late season. The 8,000-page typewritten report is interspersed with many photos of green vegetable soybeans at various stages from the farm to the table.

1929 July 20–A letter from William Morse in Tokyo is read before the attendees at the Tenth Annual Meeting of the American Soybean Association in Guelph, Ontario, Canada, and later published in the *Proceedings of the American Soybean Assoc.* (Vol. 2., p. 50-52). It is the first publication in which Morse describes his many new discoveries concerning vegetable soybeans.

1931 Jan. 3–Morse writes in his log in Tokyo: "At one of the department stores, in the vegetable market section, we

found small bundles of soybean sprouts and also some bundles of green vegetable soybean plants." This is the earliest document seen that contains the term "green vegetable soybean(s)."

1934–Vegetable-type soybean varieties that yielded well at Arlington Farm are sent to many state agricultural experiment stations for further trials. In addition, extensive investigations of the cooking qualities and composition of the green shelled and dry edible soybeans are conducted at various departments of home economics. The green beans are found to be one of the most nutritious vegetables ever analyzed.

1935 Dec.–Dr. John Harvey Kellogg of Battle Creek, Michigan, is the first person on record to can green vegetable soybeans, or to consider harvesting them mechanically. In a letter dated Dec. 9 he writes to William Morse at USDA. "We have been doing some experimenting this year with growing and canning shell soy beans. I am having a couple of cans sent you so you can see what our product is like. We think it is very fine. The few thousand cans we put up went off like hot cakes... One of the difficulties in the way of the soy shell bean business is the expense of picking from the vines and shelling the pods. Do you know of any machinery that is used for either of these purposes?"

1935 Aug.–Rokusun, the first vegetable-type soybean is mentioned in a U.S. publication–followed in March 1936 by Bansei, and Chusei. These soybeans are now publicly available in the U.S.

1936 April–A 2-page leaflet titled "Soybean introductions named in January 1936" is published by the USDA, Bureau of Plant Industry, Div. of Forage Crops and Diseases. It is the first official publication in which varietal names are given to the new vegetable type soybeans introduced by Dorsett and Morse from Japan and tested at USDA's Arlington Farm. Twenty varieties suitable for use as a "green vegetable" are listed, together with their seed color, days to maturity, and region of the USA best suited for production. This is the earliest English-language document seen that mentions the following vegetable-type varieties–all with Japanese names: Chame, Fuji, Goku, Hakote, Higan, Hiro, Hokkaido, Jogun, Kanro (in USA), Kura, Nanda, Osaya, Sato, Shiro, Sousei, Suru, Toku, and Waseda. It is also the earliest document seen in which soybeans are classified by use as "green vegetable" or "dry edible bean" or both.

1936 July–Green Shelled Soy Beans (canned) are first sold in the USA by Dr. John Harvey Kellogg's Battle Creek Food Co. in Battle Creek, Michigan. This is the earliest known commercial green vegetable soybean product in the USA.

1936 Oct. 30–A long article titled "Canning green soy beans," by Corinne Loskowske, appears in the *Herald*, published by the students of Henry Ford's Edison Institute. They have mechanized the canning process. They canned and sold 500 cans in 1935 and 1,000 cans in 1936. Similar canned green soybean products soon follow: 1939–Mother's Choice Brand Green Vegetable Soybeans (Canned), by the Fox Valley Canning Co. of Hortonville, Wisconsin.

1939 March–"Eighteen Varieties of Edible Soybeans," by J.W. Lloyd and W.L. Burlison is published at the *University of Illinois Agricultural Experiment Station, Bulletin* No. 453. The 58-page report is the most detailed and interesting to date, being based in part on comments received from 1935 to 1938 from more than 685 home gardeners, market gardeners, and canners in Illinois. The university offered to send free seed and growing instructions to any gardener who would test the green soybeans and submit frank comments in writing. The new way of growing and eating soybeans got rave reviews. For example: "Fresh soybeans had a satisfying flavor... They were delicious... We like them better than peas or beans... I served soybeans to all guests this summer and most everyone liked them... Everyone who tried them said they were splendid... We have never eaten beans as good... The beans were delicious to eat and were universally liked by my family and guests. In fact it took persuasion to leave any for seed."

During the 1930s William Morse and the University of Illinois took the lead in popularizing both green-vegetable soybeans and vegetable-type soybeans in the USA. Continued. Address: Lafayette, California. Phone: 925-283-2991.

3111. *SoyaScan Notes.*2010. Chronology of Charles Ambrose Zavitz (1863-1942) of Ontario Agricultural College, Guelph, Ontario, Canada. Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** 1863 Aug. 25–Born at Locust Grove Farm, Coldstream village, Lobo Township, Middlesex County, Ontario, Canada, the fourth and youngest child (and third son) of Daniel Zavitz and Susan Webster Vail. The family were devout Quakers and Charles was a leading figure in Canadian Quakerism. Primary and secondary education: Middlesex Country School System, then Strathroy Collegiate Institute (a high school from which he obtained his second class teacher's certificate).

1884–Enters the Ontario Agricultural College (OAC).

1886–The first cooperative experiment starts (and with it starts the pioneering Experimental Union), with twelve farmers participating. In the following year the number increased to sixty, and in the next year to ninety. This number has gradually increased until at by 1913 more than 5,000 Ontario farmers were conducting experiments on their own farms. These coöperative experiments are all conducted with material and according to instructions,

furnished by the college through the medium of the Ontario Agricultural and Experimental Union.

1888 Oct. 1–Graduates with a Bachelor of Science in Agriculture degree from OAC. Although OAC opened in 1874, he was a member of the first class (of five) to graduate with a degree from the four-year course.

1890 June 3–He and Rebecca Elizabeth Wilson are married at Isaac Wilson's residence in Bloomfield, Ontario.

1893–Placed in charge of the experimental work at OAC when Prof. Shaw resigns.

1893–Receives five soybean varieties from Dr. C. Georgeson, professor of agriculture in the Kansas Agricultural College at Manhattan, Kansas. Dr. Georgeson had received the seeds from Japan three years earlier (April 1890).

1893–Zavitz cultivates the first soybeans in Canada at the Experimental Farm, OAC, Guelph.

1894–Son, Raymond Wilson Zavitz, born.

1900–Presents the first report on soy beans to appear in the *Ontario Agricultural and Experimental Union, Annual Report* (See vol. 21, p. 9, 16, 31-32, for the year 1899. "Co-operative experiments in agriculture").

1902–Starts cross-fertilization of plants to concentrate desirable characteristics.

1904–First head, Department of Field Husbandry, OAC.

1904–A driving force in forming the Canadian Seed Growers' Association.

1908 July–Presents his first paper to the American Society of Agronomy at the annual meeting in Ithaca, New York. Titled "The relation between the size of seed and the yield of plants of farm crops," it is published in 1910 in volume 1 of the society's proceedings.

1910–Elected 2nd vice-president of the American Society of Agronomy and in 1911 he moved up to first vice-president.

1912 Nov.–Presents his second paper to the American Society of Agronomy at the annual meeting in Atlanta, Georgia. Titled "Care and management of land used for experiments with farm crops," it is published in 1913 in volume 4 of the society's proceedings.

1913–Buys a house at Poplar Hill, near Coldstream, Middlesex Co., then rents it out for the next 14 years.

1914–He designs and has built the Field Husbandry Building (now known as Zavitz Hall) on the OAC campus; it opens in 1914.

1914–Announces that he is developing O.A.C. 81, a new Canadian soybean variety, and gives yield statistics; this is the first named or numbered soybean variety ever developed in Canada.

1914–Appointed Acting President of the OAC, a position he holds until 1915, when President Creelman returns from abroad.

1916–The University of Toronto confers on Charles Zavitz the degree of Doctor of Science (honorary) in recognition of his achievements in Field Husbandry.

1919–Announces that he is developing O.A.C. 111, his second new Canadian soybean variety, and gives yield statistics.

1920–50,000 hybrid plants evaluated annually at OAC.

1922–Announces that he is developing O.A.C. 211, his third new Canadian soybean variety, and gives yield statistics.

1924–Increased value of crops developed at OAC estimated at $161 million.

1925–Registers and releases the soybean variety O.A.C. 211, the first variety to be officially registered and released in Canada. 1925–Selected as a fellow of the American Society of Agronomy. Fellowship is the highest honor a member can receive, and Charles was the first Canadian fellow of the society.

1927 June–Zavitz, the much respected Head of the Department of Field Husbandry, who has served OAC with distinction for 39 years, retires at the end of the college year because of poor health, and moves to Poplar Hill, Middlesex County, Ontario. Near his house at Poplar Hill are the Quaker Meeting House at Coldstream (1 mile to the northeast), and the homes of his two brothers (Sam and Edgar) and of many cousins, nephews, and nieces. Prof. W.J. Squirrell succeeds him as head of the department.

1931–Appointed Chairman, Canadian Friends' Service Committee (a Quaker enterprise).

1932–Publishes *Spiritual Life: Personal Thoughts,* a booklet (15 leaves, hardcover), containing his personal thoughts and beliefs on spiritual themes.

1935–Receives Doctor of Laws *in honoris causa* (honorary degree) from University of Western Ontario.

1942 March 17–Charles dies in his home at Poplar Hill, Ontario, Canada, and is buried at the Friends Burying Ground, Coldstream, Ontario.

1974 Nov. 17–Inducted into the Canadian Agricultural Hall of Fame.

1984–Inducted into the Ontario Agricultural Hall of Fame.

1993 Oct. 6–Honored by the Ontario Soybean Marketing Board on the 100th anniversary of the cultivation of soybeans in Canada.

1999 June 11–On the 125th anniversary of the Ontario Agricultural College, Zavitz is honored by the University of Guelph with an honorary Doctor of Science degree, awarded posthumously.

3112. *SoyaScan Questions.*2010. Questions about the history of soybeans and soyfoods in Canada. Further research needed. Compiled by William Shurtleff of Soyinfo Center.

• ***Summary:*** (1) Try to find out when and from whom Mr. Bruce (of John A. Bruce & Co.) in Hamilton, Ontario, obtained the soja beans which he sent in 1881 to Canada's Central Experimental Farm at Ottawa. Which library in Canada or the USA has the best collection of John A. Bruce & Co.'s seed catalogs? Look at these starting in the year 1881, going backward, then forward to see if the company ever sold soybeans in its seed catalog. Has a history of this seed company or of its founders ever been written? Is there an archival collection anywhere for this seed company? Has anyone written a genealogy of this branch of the Bruce family which includes its founders?

(2) What was the relationship between the company in Toronto that made Sunsoy (Soy Bean (Sunsoy) Products Ltd. Renamed Sunsoy Products Ltd. in about 1939) and Victory Mills Ltd.? Both were subsidiaries of Canadian Breweries Ltd. When, why and by whom was Soy Bean Products Ltd. founded? What kind of a company was it–a soybean crushing company? A maker of whole (full-fat) soy flour? Did it import any soybeans or soyfoods? What products did it make and what was the name of each?

(3) When, where, and by whom were soybeans first cultivated in Quebec? Where did Leonard Klinck get the soybeans he cultivated? When did he first cultivate them?

(4) When and where was soy sauce first imported to Canada?–probably during the period 1750 to 1800? In what newspaper or book (and in what language–French or English) is this information first recorded? Which were Quebec's earliest surviving newspapers? Have they been digitized? What were the various early names of soy sauce in Canadian French and English?

(5) When and where were soybeans first grown in Quebec (probably at Macdonald College). When and from where did Leonard Klinck obtain his first soybeans? The Quebec No. 92 was originated by selection by Dr. L.S. Klinck, when in charge of the agronomy work at Macdonald College, Quebec.

An asterisk (*) at the end of the record means that SOYFOODS CENTER does not own that document.
A plus after eng (eng+) means that SOYFOODS CENTER has done a partial or complete translation into English of that document.
An asterisk in a listing of number of references [23* ref] means that most of these references are not about soybeans or soyfoods.

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